Thomas Dundas Esq.r
Upleatham, Yorkſhire

FRONTISPIECE.
O fortunati sua si bona norint Ruricolæ!

THE NEW

GARDENER's DICTIONARY;

OR

Whole Art of Gardening,

FULLY AND ACCURATELY DISPLAYED;

CONTAINING

The moſt approved Methods of cultivating all Kinds of
TREES, PLANTS, and FLOWERS;

WITH

Ample Directions for performing all the Operations in GARDENING;

WHETHER THEY RELATE TO

I. The HOT-HOUSE,
II. The GREEN-HOUSE,
III. The SHRUBBERY,
IV. The KITCHEN-GARDEN,
V. The FLOWER-GARDEN, or
VI. The FRUIT-GARDEN.

According to the PRACTICE of the BEST MODERN GARDENERS,
Arranged under the ENGLISH proper Name of each Article.

By JOHN DICKS,
GARDENER to his GRACE the DUKE OF KINGSTON;
Aſſiſted by many EMINENT in the PROFESSION.

Nec vero ſegetibus ſolum, et pratis, et vineis, et arbuſtis, res ruſticæ lætæ ſunt; ſed etiam hortis et pomariis.
CIC. de Senect. 15

Sherlock Fec.

LONDON:
Printed for G. KEITH; J. JOHNSON; J. ALMON; and BLYTH and BEEVOR.
1771.

WELLCOME
HISTORICAL
MEDICAL
LIBRARY

ADVERTISEMENT.

IT is a pleaſing employment for an ingenuous and benevolent mind to reflect on the various and valuable improvements that have been lately made in all the uſeful and practical arts; to compare their former with their preſent ſtate; and to remark how the rays of genuine knowledge have gradually diſſipated the miſts of ignorance and error. Among theſe uſeful and practical arts, the practice of Gardening has had an ample ſhare. That engaging and neceſſary employment has within a few years been carried to an amazing height; and new experiments and new diſcoveries are made almoſt every day to advance it ſtill nearer to perfection.

But theſe diſcoveries and improvements having been made by a great variety of Gardeners, they are ſcattered in a number of books, and by that means, known only to thoſe who have leiſure to peruſe, and abilities to purchaſe the many treatiſes in which they are contained.

The author of this Dictionary was therefore perſuaded that he could not employ his leiſure hours to more advantage than by forming a ſyſtem of the moſt approved methods of cultivating all kinds of trees, plants, and flowers. This laborious taſk he has cheerfully undertaken, and that the reader may always know the writer to whom he is indebted for every improvement and diſcovery, that is not his own, the names of the authors from whom every particular is extracted, are added at the end of each article.

But though the principal intention of the author is to preſent the reader with a complete Syſtem of Gardening, in which he propoſes to give every thing that is valuable from the beſt writers of different nations, yet he flatters himſelf that his own diſcoveries and improvements will not be conſidered as the leaſt valuable part of this performance. Bred from his earlieſt years to the practice of Gardening and always deſirous of improving that entertaining and uſeful art, it has been his conſtant practice to make remarks on the precepts delivered by the beſt writers on Gardening; to correct their errors, and ſupply their defects. By conſtantly perſevering in this method, he has acquired a fund of materials and obſervations, which he would willingly hope, will prove of the greateſt uſe to every lover of this delightful art.

At the ſame time he could not help obſerving, that the beſt writers on this ſubject, have omitted the moſt important particulars in the practice of Gardening; namely, the methods of performing the various operations neceſſary to be done in the hot-houſe, green-houſe, ſhrubbery, kitchen, fruit, and flower Gardens. Theſe operations are indeed directed to be performed, but the manner how they are to be performed is left to the ſagacity of the reader; the author of this work has therefore been very particular in deſcribing the beſt methods of conducting theſe various operations, in order to render the practice of Gardening eaſy to be obtained.

He has alſo by omitting a great number of uſeleſs particulars, and by carefully avoiding to repeat the ſame directions under different articles, reduced his work to about half the price, of the beſt Dictionary of Gardening yet extant in the Engliſh language. Though he flatters himſelf that it will be found to contain the whole art as now practiſed by the beſt Gardeners, beſides a great variety of diſcoveries and improvements, made by himſelf and his friends during an interval of many years ſpent in aſſiduous obſervation.

The author alſo begs leave to obſerve, that this work has another advantage over every other performance of this kind in the Engliſh language: namely, in the copper-plates with which it will be illuſtrated. On theſe plates, a great variety of curious particulars will be delineated, and by that means, a more adequate idea will be conveyed to the reader than is poſſible to be done by verbal deſcription only.

In a word, the author has ſincerely laboured to render this work as uſeful as poſſible. In order to which neither pains nor expence have been ſpared. He has exerted his utmoſt abilities to make the delightful practice of Gardening eaſy and familiar, by removing every difficulty, and deſcribing every operation in the plaineſt manner. The public will judge how well he has ſucceeded; and to their deciſion he cheerfully ſubmits the merit of his labours.

Knightſbridge,
Oct. 20, 1769.

J. DICKS.

* * *

A NEW

GARDENER's DICTIONARY.

ABELE-TREE, a ſpecies of the Poplar, (ſee the article Poplar.) The leaves are large, and divided into four or five lobes, deeply indented on their edges, of a very dark colour on their upper ſide, but white and downy on the under, ſtanding on foot-ſtalks about an inch long. The male flowers or kat-kins, begin to appear about the beginning of April; they are cylindrical, ſcaly, and about three inches long; the female flowers, which appear ſoon after the male, have no ſtamina. The ſeeds are incloſed in a hairy covering, and are often wafted by the wind to a conſiderable diſtance.

The Abele-tree may be propagated by layers or cuttings in the month of February. The cuttings ſhould be about three feet in length, and thruſt about a foot and a half into the ground. The ſoil ſhould be moiſt, if boggy the better; for they flouriſh beſt in watery places, and will become large trees in a few years. A very conſiderably advantage might therefore be made by planting theſe trees in waſte places often overflowed with water, and which, on that account, produce very little profit to the owner.

ABLACTATION, a ſpecies of grafting much uſed by the ancients, and called by the modern gardeners grafting by approach. See the article Grafting.

ACACIA, *Egyptian thorn*, or *Binding Bean-tree*, a ſpecies of the Mimoſa, or Senſitive Plant, according to Linnæus; but a diſtinct genera, according to other botaniſts. See the article Sensitive Plant.

There are thirty-five ſpecies of this plant, which are all natives of the warmer climates, and therefore cannot be raiſed here without an artificial heat. Nor will they ripen their ſeeds in England; and therefore ſhould be procured from the places where they flouriſh naturally.

Theſe ſeeds ſhould be ſown on a hot-bed, or in pots filled with light rich earth, in the ſpring, and plunged into a bed of a moderate degree of heat; they will appear above ground, and when they are about three inches high, they ſhould either be tranſplanted into a freſh hot-bed prepared for that purpoſe, or each into a ſeparate pot, and again plunged into a hot-bed made of tanner's bark; taking particular care to ſhade them from the rays of the ſun till they have taken root; after which they ſhould have freſh air admitted to them, by raiſing the glaſſes in proportion to the warmth of the ſeaſon; care muſt alſo be taken, to water them gently, when the earth of the pots is dry; but they ſhould have only a little at a time as they do not imbibe moiſture very faſt.

A ſufficient quantity of air muſt be admitted to the plants as they advance in ſtrength; and when the pots are filled with their roots they ſhould be ſhifted into others of a larger ſize; but care ſhould be taken that the pots are not too capacious, for they will not thrive in large pots; the earth ſhould be light and ſandy, for they will make but little progreſs, if the ſoil be ſtiff.

During the ſummer ſeaſon, when the plants have acquired a ſufficient degree of ſtrength, they may be expoſed to the open air; but this ſeaſon rarely laſts longer than from the end of June to the end of Auguſt; during which time they ſhould be placed in a warm ſituation and carefully defended from ſtrong winds. Another circumſtance neceſſary to be obſerved is to ſhift them when they are expoſed to the open air that they may be well rooted before the cold comes on in the autumn; when they muſt be removed into the green-houſe. The moſt tender ſort ſhould be placed in a warm ſtove during the winter; for the air of the green-houſe will be too cold for them. But by keeping them in a moderate temperature of warmth they will ſucceed very well.

As theſe plants acquire ſtrength, leſs care will be neceſſary; therefore as they advance in their growth, they ſhould be gradually uſed to a colder air; but the gardener muſt be very careful not to give them too much water.

ACANACEOUS, an epithet applied to thoſe plants which are prickly, and bear their flowers and ſeeds in a kind of heads.

ACANTHACEOUS, an epithet applied to all plants of the thiſtle kind, on account of the prickles with which they are beſet.

ACANTHUS, *Bear's Breech*, the name of a genus of plants, placed by Linnæus in the dynamia claſs, and angioſpermia order.

There are four ſpecies of this genus; but the true Acanthus is called by authors *Acanthus mollis*, and *Acanthus Virgilii*; ſome *Branca Urſina*, but that name is leſs known: its proper title is *Acanthus foliis ſinuoſis inermibus*; by which it is diſtinguiſhed from all other ſpecies.

It is a native of Greece and Italy; but will grow freely in good ſoils with us, without any particular care or culture.

The root is thick and full of fibres, the ſtalk fleſhy, round, purpliſh or pale green, not much branched, and about a yard high. The leaves are long, and moderately broad; their colour is a freſh and lively green, with paler ribs; and they are waved and indented at the edges in a regular manner, and with unequaled beauty. The flowers adorn the top a foot in length, cluſtering along the ſtalk in a thick ſpike. Singly they are ſmall; they are placed in a kind of triple cup, and are ſucceeded by a dry capſule.

In Italy the Acanthus flouriſhes in a deep ſoil, where there is water near, and where it is not quite deſtitute of ſhade. The gardener ſhould therefore imitate theſe particulars ſo far as circumſtances will permit. Let him chuſe for his Acanthus the dampeſt part of his garden; let him dig the mould deep, and in the firſt week of March ſow the ſeeds; they are beſt dropped at proper diſtances into ſhallow drills, and covered three quarters of an inch deep with mould.

Here they will ſhoot freely; and when riſen the ſtrongeſt plants ſhould be marked, and the reſt pulled up, that theſe may ſtand at a yard diſtance from each other. They will ſpread out their beautiful leaves into circular cluſters, and flower late in the autumn.

ACAULOSE, without a ſtalk or ſtem; a name given by ſome writers to ſuch plants as have no *caulis* or ſtalk.

ACHILLÆA, a genus of plants, ranged by Linnæus among the polygamia ſuperflua ſyngeneſia, and of which there are nineteen ſpecies, eſpecially the purple tanzy-leaved Achillæa.

The old authors were not unacquainted with this plant; Bauhine calls it ſmall white flowered tanzy, with a ſmell of camphire; But Tragus, with more propriety calls it, noble yarrow, and Moriſon, purple mountain yarrow with tanzy leaves.

Linnæus calls it Achilæa with leaves doubly pinnated the pinnæ diſtant and obtuſe, and about ſeven pairs on each rib. The name is very expreſſive but culture varies the number and diviſion of the leaves, though they keep in general the ſame form.

The root is long, thick, and hung with many fibres; it divides towards the top into ſeveral heads, and each ſends forth many elegant leaves and a firm ſtalk.

The leaves are long, large and elegantly divided; each is compoſed of numerous pinnæ fixed on the two ſides of a middle rib which is terminated by an odd one. Theſe pinnæ are not ſingle little leaves, as in many caſes, but they are themſelves divided by deep inciſions, in the pinnated manner, and ſtand remote, ſo that the whole leaf is extremely elegant. The middle rib is ſoft of a purpliſh colour towards the ground, and lightly covered with a grey ſcattered down. The whole leaf is ſix or eight inches long, and has a ſtrong ſmell not unlike that of camphire, and with ſome flavour of the tanzy, which it reſembles alſo in diviſion and a general form.

The ſtalk is round, upright, not jointed; ſtraited and covered with a light greyiſh down. It is red towards the ground but in the upper part of a whitiſh green.

The leaves on this are numerous and very elegant; they ſtand alternately, with young ones in their boſoms; and they are long, narrow and pinnated. The pinnæ are very diſtinct, though cloſe placed; and though they are not divided again down to the rib, as in the radical leaves, they are yet deeply and elegantly indented.

The flowers terminate the ſtalk in a large irregular umbell, and their colour is ſometimes white; but properly, and always when the plant is well managed, a delicate pale crimſon.

As the general umbell is compoſed of many ſmall flowers, each flower is in the ſame manner compoſed of many floſcules arranged in a common cup. This is of an oval but ſomewhat oblong form, and is compoſed of numerous oval ſcales, pointed and placed on one another as tiles.

The floſcules in each flower are of two kinds, tubular and ligulated: the tubular form the diſk, and have complete male and female organs of impregnation; the ligulated are a kind of rays in the verge, which have only female.

The tubular floſcules have a rim cut into five expanded ſegments. The ligulated floſcules of the verge are broad, expanded, and cut into three parts at the top, the middle one of which is ſmaller than the others. In the tubular floſcules are placed the filaments; they are five, and they have oblong buttons which coaleſce and form a cylinder, with a ſingle ſlender ſtyle of the length of the filaments, riſing from a ſmall rudiment, and crowned with an obtuſe head.

In the female floſcules there are no filaments, but there is underneath them a rudiment of a ſeed, from which riſes a ſingle ſtyle with two obtuſe heads, which turn back.

The ſeeds ripen equally after the tubular and ligulated floſcules; and they are placed on an oblong and ſomewhat conic receptacle; and ſeparated by a kind of filmy ſcales.

The claſs of the plant is ſeen in the coaleſcence of the buttons into this cylindric form; it is the mark of the ſyngeneſious tribe. And as the ſeeds under the tubular floſcules ripen as well as thoſe with the female, the ſubdiviſion to which it belongs is that of the polygamia ſuperflua.

The plant is a native of many parts of Europe, nor is limited to thoſe in warmer latitudes, but it flouriſhes beſt in them; and naturally affects a looſe, deep, and not too rich ſoil.

To raiſe it in perfection in the garden, we muſt copy this.

The ſeeds ripen freely with us, and ſhould be ſaved with care, hardened on a ſhelf, and kept in bags till ſpring.

Let them be ſown on a piece of common ground in the nurſery; and when they riſe, thinned, weeded, and watered.

In May, five or ſix of the fineſt plants ſhould be taken up, and brought into the garden. They will not flower the ſame year, but their leaves are very handſome, and they will ſucceed better when they have only this one remove than if they had more. To improve them to the utmoſt, the mould ſhould be dug out where they are to ſtand in the garden, and ſome freſh paſture earth put in its place.

They will flower the ſucceeding ſummer, and remain good three or four years, but at the end of that time it is beſt to have a freſh ſucceſſion; the ſeed of which ſhould be ſaved from the ſecond year's flowering, for they never are ſo perfect from any other. In all ſtates the plant is of diſtinguiſhed elegance. *Hill's Gardening.*

ACINI, the ſmall protuberances of mulberries, ſhawberries, &c. and by ſome applied to grapes and currants.

ACONITE, *Monkſhood*, or *Wolfſbane*, a genus of plants, placed by Linnæus among the polyandria trigynia, in his ſyſtem of Botany.

There are ſeveral ſpecies of this plant, but the yellow Pyrenean Aconite is a very ſingular and elegant plant, though leſs common than it ought to be in our gardens. It is hardy, of eaſy culture, and will always prove a ſource of variety.

It is a native of ſo many parts of the world, that one wonders to ſee ſo few of the botanical writers deſcribe it. This cannot have ariſen from their not having ſeen the plant, but to their overlooking its diſtinctive characters; they have doubtleſs confounded it with the common yellow Aconite, ſuppoſing that extreme diverſity of the leaves accidental, which latter and more accurate ſearches have found to be ſpecific.

Ray, in his catalogue of the European plants, extraneous to Britain, names it, and very juſtly marks the diſtinction. He calls it Aconitum pyrenicum luteum foliorum ſegmentis ſibi invicem incumbentibus. Linnæus, Aconitum ſoliis multipartitis laciniis linearibus incumbentibus ſquarroſis: Aconite with divided leaves, and linear ſegments, looſe and lying over one another.

The root is compoſed of a multitude of long twiſted blackiſh fibres, connected to a ſmall thick head.

The ſtalk is a yard high, pale, upright and not branched: ſeveral ſhoots riſe from the boſom of the upper leaves, but they are ſmall and erect; the main ſtalk runs up ſingle and undivided.

The leaves are of a pale, but not unpleaſing green; and in rich ſoils often conſiderably deeper. They have long footſtalks alſo of a faint green, and they hang from them in a palmated form, but with wild and ſtrange irregularity.

Each leaf is divided to the rib into five ſegments; theſe are long, narrow, rarely of equal breadth, and cut into deep ſegments, or at the leaſt, deeply notched at the edges, and ſharp pointed.

The lower leaves ſometimes have theſe ſegments expanded flat and regularly; but the general diſpoſition is much otherwiſe. The form of the leaf is the ſame, but nothing is ſo wild as the arrangement of their ſegments; they fall againſt, and over one another; and they expand and twiſt themſelves in various odd directions.

The flowers are extremely elegant; they are numerous, and they terminate the main ſtalk, and all the branches in a kind of ſhort ſpikes. Each has its footſtalk, their colour is a very ſingular pale, and as it were whitiſh yellow. Their form is properly that of the Aconite flower. Extravagant, but too common to have the due admiration.

There is no cup, the body of the flower is compoſed of five petals, one of which is placed above, two below, and two ſideways; the upper petal is tubulate and galeated, inverted or placed with the back upwards, and is obtuſe, the head bent back to the baſe and pointed: to this head, the baſe where the connection is, ſtands oppoſite; this is the ſtrange form of the upper petal, not eaſily intelligible by words alone, but familiar by compariſon of the flower; the two ſide petals are broad, rounded, placed oppoſite and convergent; the two loweſt are oblong and narrower, and they hang downward.

There are two nectaria very ſingularly diſpoſed, hid as it were under the upper petal. They are hollow, and have an oblique mouth, and they ſtand nodding, and have a crooked tail; theſe ſingular parts are placed on long foot ſtalks, ſlenderer towards the top.

The filaments are numerous, and ſlender, turning towards the upper petal: they are broad at the baſe, and have ſmall upright buttons. In the midſt of theſe ſtand five ſtyles of the length of the filaments, riſing from ſo many rudiments of ſeed veſſels, and terminated by ſimple reflex heads.

The fruit is compoſed of many ſeed veſſels, and each contains ſeveral rough angular ſeeds.

It is a native of the northern parts of Europe, and many other cool parts of the world; the ſoil which beſt ſuits it is moiſt rich mould, and it ſucceeds beſt in an open expoſure; the ſhade of trees does not deſtroy the plant; but it never flowers ſo well under it, nor is ſo healthy.

The common and eaſy way of propagating it is by parting the root in autumn; but it is very eaſy to raiſe it from ſeed, and in that ſtate it always ſucceeds better. Let ſome good ſeed be procured from a plant in an open rich ſoil, which has not been ſuffered to produce too large a quantity. No ſide ſhoots ſhould in theſe ſeed plants be ſuffered to flower; and the top of the ſpike ſhould be nipped off to prevent the upper flower. Thus the ſeed veſſels of ſix or eight of the lower ones will fill with perfect ſeeds.

Let theſe be dried in the uſual manner, and kept during the winter.

In the beginning of March, let a bed be dug in an expoſed part of the nurſery, and theſe ſeeds ſcattered on it; and a finger's breadth of mould ſifted over them.

When theſe plants appear, thin them to five inches diſtant, leaving only the ſtrongeſt, and in May tranſplant theſe into another border in the nurſery, at eight inches aſunder. In September take them up with good balls of earth, and remove them into the garden. They will flower in full perfection the following ſeaſon.

Seeds ſhould be ſaved from the fineſt plants, with the care above directed, and ſown every year. The trouble is little, and the advantage will be, the keeping the plant in its full perfection; and perhaps, improving it every ſeaſon.

ACORN, the fruit of trees of the oak kind. See the article Oak.

ACORUS, *Sweet Ruſh*, or, the *Sweet Smelling Flag*, *Calamus Aromaticus*, a genus of plants of *Monogynia hexandria* order. It is a perennial plant growing naturally in watry places in many parts of England, and ſeveral other parts of Europe. It may be propagated by tranſplanting the root into moiſt ground; but it never produces its ſpikes of flowers except it grows in water.

ADAM's NEEDLE, a ſpecies of a genus of plants, called Yacca by botaniſts, and placed by Linnæus among the hexandria monogynia. It is a native of Virginia, and other parts of North America. It ſeldom riſes with a ſtem above a foot in height, garniſhed with leaves almoſt to the ground. The leaves are broad, ſtiff, and of a dark green colour, terminating in a ſharp black ſpine. They greatly reſemble thoſe of the Aloe, but are conſiderably narrower. Theſe plants frequently produce ſpikes of flowers, which riſe from the alæ of the leaves. They are bell ſhaped, hang downwards, and white within, but each petal is marked with a purple ſtripe on the outſide. They grow on ſtalks three feet high, branched out to a conſiderable diſtance; but the flowers are placed very ſparſedly on the branches.

Theſe are ſhruby plants, in the gardens of the curious; and when grown ſtrong and hardy, will endure the cold of our climate in the open air, and often produce flowers. The plants may be propagated either from ſeeds ſent from abroad, or from off-ſets or heads taken from the old plants in the manner of the Aloe: (ſee the article Aloe) When they are to be raiſed from ſeeds, theſe are to be ſown in a pot of light freſh earth, which being plunged into a moderate hot bed, the young plants will appear in five or ſix weeks; and when they are two or three inches high, they are to be removed each into a ſeparate pot, which is to be plunged again into the ſame hot bed, where they are to be watered and ſhaded, and to have air given them, as the ſeaſon and the heat of the bed will permit. In July they muſt be hardened by degrees to the open air, into which they muſt be removed ſoon after, to harden them againſt winter. They muſt be placed in a ſheltered ſituation, and remain abroad till October, when they are to be removed into the green-houſe, and placed among the hardier ſorts of Aloes. They are here to be treated exactly as thoſe plants; and when they are grown ſufficiently ſtrong, they may be removed into common borders, where they will remain through our winters, and flower very beautifully. When they are to be raiſed from the off-ſets, theſe muſt be laid in a dry place for a week or ten days before they are planted, that the wound where they were taken off from the old plant may heal, elſe, like the other ſucculent plants, they are apt to rot in the earth and miſcarry.

ADONIS FLOWER. See Pheasant's Eye.

AFRICAN MARIGOLD, a ſpecies of a genus of plants, called *Tagetes*, and too well known in the Engliſh gardens to need deſcription here. There are ſeveral varieties of this plant, and all of them very ſubject to vary; ſo that unleſs the greateſt care be taken in ſaving the ſeeds, they are very apt to degenerate.

All the varieties are annual plants, and muſt therefore be raiſed from ſeeds ſown every ſpring, on a moderately hot bed, about the beginning of April. As ſoon as the plants are come up, they ſhould have plenty of freſh air; for if they are drawn too much, they will not afterwards make a handſome appearance. When they are about three inches high, they ſhould be tranſplanted on a very moderate hot bed, arched over with hoops, and covered with mats; and as the plants acquire ſtrength, innured to the open air by degrees.

About the end of May they may be taken up, with a ball of earth about their roots, and planted out in the beds, borders, and other parts of the pleaſure-garden, where they will make an agreeable appearance in two months time.

Let them be planted out in a ſhowery, or moiſt time, and in an evening, after four or five o'clock, is the beſt time of the day to plant them. Be ſure not to remove them in dry hot weather, for if that was done, not one plant in ten would ſucceed.

Take particular care in planting them, to mix the different ſorts in a proper manner, ſo that there may be a variety of flowers in every part; and as ſoon as they are planted, let them all be moderately watered.

If the weather proves dry, the waterings muſt be repeated, at leaſt, once every other evening, till the plants have taken root.

But where time will permit, it is the beſt method to prick theſe plants now firſt out from the ſeed-bed, into a nurſery-bed of rich earth, in the common ground, there to remain for a month to get ſtrength, before they are planted out for good, in the borders.

The beds for the purpoſe, ſhould be about forty inches broad: rake the ſurface ſmooth, and put in your plants about four or ſix inches diſtant each way, and water them.

Then it would be of great advantage to place a few hoops a-croſs the beds, and let mats be drawn over them occaſionally, to ſhade the plants from the ſun, till they are rooted; and the mats may alſo be uſed in cold nights, to ſhelter the plants.

There is a great advantage in pricking theſe plants out in this manner, from the ſeed-bed, becauſe they can be very conveniently watered and ſhaded from the ſcorching ſun, till they have taken good root and ſtrength, and can be alſo occaſionally ſheltered in cold nights, till they are ſtrong and hardened by degrees to bear the open air fully, night and day.

They will have acquired that hardineſs and ſtrength in about four weeks after they are pricked out; the plants muſt then be taken up with ſmall balls of earth, which will readily hang about their roots, and planted carefully with the balls intire, into the places where they are to remain. *Wheeler's Botaniſt's Dict. Miller's Gard. Dict. Mawe's Gardener's Kalendar.*

AFRICAN TULIP, *Hæmanthus*, a genus of plants claſſed by Linnæus among the hexandria monogynia.

The roots are compoſed of many thick, fleſhy tubes, which join at the top, where they form a head, out of which riſes a fleſhy, ſpotted ſtalk, like that of the Dragon, which ſpreads out at the top into ſeveral ſpear-ſhaped leaves, waved on their edges. The ſtalks grow about a foot high, and from the ſide of it near the ground breaks out a ſtrong fleſhy foot-ſtalk, about ſix or eight inches long, ſuſtaining at the top a large cluſter of flowers, included in one empalement or covering. The flowers are of a yellowiſh red colour, and ſucceeded by berries of a beautiful red when ripe.

It is a perennial plant, and a native of Africa, has a large bulbous root, from which come out in the autumn, two broad flat leaves of a fleſhy conſiſtence, ſhaped like a tongue, which turn backward on each ſide, and ſpread flat on the ground, ſo have a ſingular appearance all the winter. In the ſpring theſe leaves decay, ſo that from May to the beginning of Auguſt, the plant has no leaves, and always produces its flowers in autumn, juſt before the new leaves come out. This ſort is propagated by planting the roots in pots, filled with light loomy earth, which in the winter muſt be placed in a moderate degree of warmth; where, during that ſeaſon, the leaves will be in full vigour, and will make a pretty appearance, when intermixed with other plants in the ſtove. When the leaves are decayed, the roots may be taken up, and kept out of the ground till Auguſt; then they ſhould be new potted, and may remain abroad till the end of that month, at which time they muſt be removed into the ſtove, where they ſhould have frequent, but gentle waterings. *Wheelers's Dict.*

AGRIMONY, *Agrimonia*, a genus of plants, placed by Linnæus among the *digynia dodecandria*; and of which there are five ſpecies; 1. Common Agrimony. 2. White Agrimony. 3. Sweet-ſcented Agrimony. 4. Eaſtern Agrimony. 5. Three leaved Agrimony with ſmooth fruit.

All theſe ſorts are hardy perennial plants, and will thrive in almoſt any ſoil or ſituation, provided they are kept clean from weeds. They may be propagated by parting their roots, which ſhould be done in autumn, when their leaves begin to decay, that the plants may be well eſtabliſhed before the ſpring. They ſhould be planted at leaſt two feet aſunder, otherwiſe their roots will not have ſufficient room to ſpread. If they are propagated by ſeeds, they ſhould be ſown in autumn, otherwiſe they will not come up the ſame ſeaſon.

Hemp AGRIMONY, *Eupatorium*, a genus of plants, placed by Linnæus among the *polyganiœ æqualis ſyngeneſia*; and of which there are fourteen ſpecies.

1. Hemp Agrimony with ſpear-ſhaped, narrow, entire leaves, with three nerves. 2. Hemp Agrimony with a twining ſtalk and heart-ſhaped leaves, ſharply indented. 3. Hemp Agrimony with a twining ſtalk and oval leaves. 4. Hemp Agrimony with oval, ſpear-ſhaped, indented leaves, upon foot ſtalks: 5. Hemp Agrimony with diſtinct, ſpear-ſhaped, ſeſſile leaves embracing the ſtalks. 6. Hemp Agrimony with oval ſawed leaves, upon foot-ſtalks. 7. Hemp Agrimony with ſeſſile, diſtinct, roundiſh, heart-ſhaped leaves. 8. Hemp Agrimony with ſpear-ſhaped, veined leaves, the lower exterior ones of which are ſerrated, and a ſhrubby ſtalk. 9. Hemp Agrimony with trifoliate leaves. 10. Hemp Agrimony with finger ſhaped leaves. 11. Hemp Agrimony with leaves placed in whorls, the leaves ſpear-ſhaped, ſawed, rough, and ſtanding upon foot-ſtalks. 12. Hemp Agrimony with heart-ſhaped, oval, obtuſe, ſerrated leaves, upon foot ſtalks, and many flowers to the cups. 13. Hemp Agrimony with wooly leaves, joined at their baſe. 14. Hemp Agrimony with oval, obtuſe, ſerrated, three-veined leaves, upon foot-ſtalks, and ſingle cups to the flowers.

Theſe ſpecies are all perennial plants, the firſt, ſecond, fifth, ſeventh, ninth, twelfth, thirteenth, and fourteenth ſorts are natives of Virginia; the eighth ſort grows naturally in Penſylvania, and the eleventh is a native of other parts in North America. Theſe may all be propagated, by ſowing the ſeeds in the full ground; but care muſt be taken in the ſowing, to keep the ſorts ſeparate, for as the ſeeds of the plants have a light down adhering to them, they are eaſily diſplaced by the leaſt wind; they ſhould, therefore, be ſown in drills, but theſe ſhould be ſhallow, for if the ſeeds are buried too deep they will not grow. The bed in which they are ſown ſhould not be too much expoſed to the ſun, but rather have an eaſt aſpect, where the morning ſun only reaches it; and where it is more expoſed, it ſhould be ſhaded with matts in the heat of the day, and the ground ſhould be kept pretty moiſt. When the young plants are come up, they muſt be kept clean from weeds, and thinned where they grow too cloſe; and in autumn following, let them be tranſplanted to the places where they are deſigned to remain. As the roots of theſe plants ſpread out to a conſiderable diſtance, they ſhould be allowed no leſs than three feet ſpace from any other plants; and ſome of the largeſt ſhould be allowed four feet. In dry ſummers they ſhould be watered, and they ſucceed beſt in a ſoft, gentle loam. Theſe plants may alſo be propagated by their roots, and ſome of them have creeping roots, that ſend out off-ſets, by which the plants may be increaſed. The beſt time for removing theſe plants is autumn, as ſoon as they have done growing; and if the froſt ſhould come before they are rooted, it will be proper to cover the ſurface of the ground with tan, or dried leaves, to keep out the froſt. The third ſpecies grows naturally in Vera Cruz; the fourth in the iſland of Ceylon; and the ſixth in China. Theſe plants, being natives of warm climates, muſt be planted in pots and plunged into the tan bed in the ſtove, where, if they are properly ſupplied with water, in hot weather, they will thrive and flower. The tenth ſort, or common Hemp Agrimony, grows naturally by the ſides of rivers, and ditches in this, and moſt other countries in Europe, and the only ſpecies of this plant which is known to grow in Europe; but it is ſeldom cultivated in gardens, where, if once admitted, it would prove a troubleſome weed.

Baſtard Hemp AGRIMONY, *Ageratum*, a genus of plants, placed by Linnæus among the *polygamia æqualis ſyngeneſia*.

There are three ſpecies of this plant, 1. Baſtard Hemp Agrimony with oval leaves, and a hairy ſtalk. 2. Baſtard Hemp Agrimony with oval, crenated, obtuſe leaves, and a ſmooth ſtalk. 3. Baſtard Hemp Agrimony with rough, oval, heart-ſhaped leaves, flower branches growing alternate, and a ſmooth ſtalk.

The firſt and ſecond ſpecies are annual plants, and natives of South America. They are propagated by ſeeds which ſhould be ſown in a hot-bed in the ſpring; and when the plants are come up, and have acquired a ſufficient degree of ſtrength, they ſhould be tranſplanted into another moderate hot-bed, obſerving to water and ſhade them from the ſun, till they have taken root. In warm weather they ſhould have plenty of freſh air, and about the middle of June be tranſplanted into the full ground where they are to flower. The third ſpecies has a perennial root, and is a native of Canada and Virginia. This ſpecies muſt alſo be propagated by ſeeds; but as the autumn in England is ſcarce ever ſo favourable as to ripen them, the plant is generally increaſed by parting the roots in autumn, ſoon after the leaves begin to decay. They ſhould not be planted nearer to each other than three feet, and ſhould have a rich moiſt ſoil, and open expoſure. *Wheeler's Botan. Dict.*

AGUE-TREE, ſee the article SASSAFRAS.

AIR, the thin elaſtic fluid ſurrounding the globe of the earth to a conſiderable height.

Air is one of the moſt canſiderable and univerſal agents in nature, which ſhe is conſtantly applying in all her works. It appears from experiments made by Dr. Hales, that different bodies contained different quantities of air, from a ſixteenth to one half of their whole ſubſtance. It is the principal cauſe of the vegetation of plants, as well as the preſervation of animal life; and a certain portion of it is neceſſary to preſerve the growing quality of ſeeds. It appears by Dr. Hales's experiments that air is inſpired by vegetables, not only in their roots, but alſo through ſeveral parts of their trunk and branches; and that this air may be ſeen aſcending in great plenty through the ſap of the vine, in tubes affixed to them at the bleeding ſeaſon. Entering into the veſſels of plants, it aſſiſts in the rarefaction of the crudities of the earth, in expelling all ſuperfluous moiſture, aad carrying along with it the ſalts either contained in itſelf, or lodged in the earth; it alſo affects the branches, leaves, and flowers of the vegetables, entering and perſpiring through them; and, by refreſhing breezes, it moderates the intenſity of the ſun beams, by cooling, blowing, opening, and extending all the offspring of nature.

Air produces a vibratory motion in ſeveral bodies, and particularly in plants, the air-veſſels of which perform the office of lungs; for the air contained in them ſometimes contracting, and ſometimes expanding, according as the heat is increaſed or diminiſhed, preſſes the veſſels and eaſes them again by turns, and thus produces a circulation of their juices, which could ſcarce be otherwiſe effected.

The air is alſo very inſtrumental in the production and growth of vegetables, both by invigorating their ſeveral juices, while in an elaſtic active ſtate, and alſo by greatly contributing, in a fixed ſtate, to the union and firm connection of the ſeveral conſtituent parts of thoſe bodies, that is, their water, fire, ſalt, and earth.

On the other hand, air, which is ſo many ways neceſſary and ſubſervient to the life and health of vegetables, is alſo ſometimes, and, on ſome occaſions, injurious and pernicious to them, not only to the ligneous, herbaceous, and flowery parts above, but alſo to the roots and fibres below; and it is eaſy to perceive that a dry, huſky, ſcorching air, may be very prejudicial to the tender fibres of new planted trees.

ALA, is a term uſed by botaniſts for the hollow of a ſtalk, which either the leaf, or the pedicle of the leaf, makes with it: or it is that hollow turning, or ſinus, placed between the ſtalk or branch of a plant, and the leaf, whence a new offspring uſually iſſues. Sometimes it is uſed for thoſe parts of leaves, otherwiſe called lobes, or wings.

ALÆ, (the plural number) is uſed to ſignify thoſe petals, or leaves of papilionaceous flowers, placed between thoſe others which are called the vexillum and carina, and which make the top and bottom of the flowers.

Inſtances of flowers of this ſtructure are ſeen in thoſe of peas and beans, in which the top leaf, or petal, is the vexillum, the bottom the carina, and the ſide ones the alæ.

ALÆ, is alſo uſed for thoſe extremely ſlender and membranaceous parts of ſome ſeeds, which appear as wings placed on them.

ALÆ, is likewiſe uſed for thoſe membranaceous expanſions, running along the ſtems of ſome plants, which are therefore called alated ſtalks.

ALDER-TREE, *Alnus*, a genus of trees, of which there are two ſpecies, 1. The common, or round-leaved Alder, 2. The long-leaved Alder.

Linnæus has claſſed theſe two ſpecies of Alder with the betula, and placed them among the tetrandria monoecia.

The firſt ſort is the common Alder, propagated in England; the ſecond is very common in Auſtria, and in Hungary, whence the ſeeds have been ſent to England. The leaves of this ſort are longer, narrower, and not ſo glutinous as thoſe of the firſt, nor are they ſo rough; they are alſo of a thinner conſiſtence.

Theſe two ſorts delight in a moiſt ſoil, where few other trees will thrive, and are a great improvement to ſuch lands; they are propagated either by layers, or planting of truncheons about three feet in length. The beſt time for this is in February, or the beginning of March; theſe ſhould be ſharpened at one end, and the ground looſened with an inſtrument before they are thruſt into it, leſt by the ſtiffneſs of the ſoil the bark ſhould be torn off, which may occaſion their miſcarriage; theſe truncheons ſhould be thruſt into the earth at leaſt two feet, to prevent their being blown out of the ground by violent winds, after they have made ſtrong ſhoots. The plantations ſhould be cleared from all ſuch weeds as grow tall, otherwiſe they will overbear the young ſhoots: but when they have made good heads, they will keep down the weeds, and require no farther care.

If you raiſe them by laying down the branches, it muſt be performed in October: and by the October following they will have taken root ſufficient to be tranſplanted out, which muſt be done by digging a hole, and looſening the earth in the place where each plant is to ſtand, planting the young tree at leaſt a foot and an half deep, cutting off the top to about nine inches above the ſurface, which will occaſion them to ſhoot out many branches.

The diſtance the trees ſhould be placed, (if deſigned for a coppice,) is ſix feet ſquare: and if the ſmall lateral ſhoots are taken off in the ſpring, it will very much ſtrengthen your upright poles, provided you leave a few ſmall ſhoots at diſtances, upon the body thereof, to detain the ſap for the increaſe of its bulk.

Theſe trees may alſo be planted on the ſides of brooks, as is uſual for willows, where they will thrive exceedingly, and may be cut for poles every fifth or ſixth year. This wood is in great requeſt with the turners, and will endure a long time under ground, or to be laid in water. *Miller's Gard. Dict.*

Berry-bearing ALDER, *Frangula*, a genus of plants, of which there are three ſpecies; 1. Black-berry bearing Alder, 2. Berry-bearing Alder, with a larger and rougher leaf, 3. Low, rocky, berry-bearing Alder, with a round leaf.

Linnæus conſiders theſe plants as ſpecies of the rhamus, or buckthorn, and places them among the monogynia petandria: but other botaniſts conſider the frangula as a diſtinct genus.

The firſt ſort is common in the woods in many parts of England, but ſeldom planted in gardens.

The ſecond ſort is a native of the Alps, and other mountainous parts of Europe, and found in ſome gardens for the ſake of variety.

The third is a low ſhrub, not above two feet in height, and grows on the Pyrenean mountains, but hardly ever tranſplanted into gardens.

All the ſpecies are eaſily propagated by ſeeds, which ſhould be ſown in the autumn, or as ſoon as they are ripe, and by that means the plants will appear in the following ſpring, otherwiſe they will lay in the ground till the next year. The young plants muſt be kept very clean from weeds while they continue in the ſeed-bed, and in the autumn tranſplanted into a nurſery, in rows two feet aſunder, and the plants a foot from each other. After remaining two years in the nurſery they may be planted out where they are intended to remain.

ALISANDERS, or ALEXANDERS, *Smyrnium*, a genus of plants, ranged by Linnæus among the *digynia pentandria*: and of which there are four ſpecies.

1. Aliſanders with ſimple leaves embracing the ſtalks, 2. Aliſanders with trifoliate leaves on the ſtalks, ſerrated, and furniſhed with trifoliate foot-ſtalks, 3. Aliſanders with winged leaves, the hinder ones trifoliate, and all the florets fertile, 4. Aliſanders with double trifoliate entire leaves on the ſtalks.

Theſe are all biennial plants; the firſt is a native of Italy and Crete, the ſecond of England, and the third and fourth of North America; they may be propagated, by ſowing their ſeeds as ſoon as they are ripe, upon an open ſpot of ground. The ſecond ſort ſtands recommended as a medicinal plant, and is ſometimes cultivated for the table. In the ſpring the plants ſhould be trod out, ſo as to leave them ten inches, or a foot, apart each way. During the following ſummer they muſt be kept clean from weeds, and in the ſucceeding February blanched for uſe.

ALKENET. See the article BUGLOSS.

ALLELUJAH. See WOOD-SORREL.

ALMOND-TREE, *Amygdalus*, a genus of trees, ranged by Linnæus among the *monogynia icoſandria*, and of which there are three ſpecies, 1. Amygdalus, with all the ſerratures of the leaves acute, or the Peach-tree. See the article PEACH-TREE. 2. Amygdalus, with pitiolated leaves, and the lower leaves glandulous, being the common manured Almond-tree, 3. Amygdalus, with pitiolated leaves, attenuated at the baſe, or the Dwarf Almond-tree.

The common Almond is cultivated in all the nurſeries, and the trees are generally planted for the beauty of its flowers. Theſe often appear in February, when the ſpring is forward, but if froſt comes after, the flowers are ſoon deſtroyed, ſo that their beauty is of ſhort duration, and in thoſe ſeaſons there are few Almonds produced: whereas, when the trees do not flower till late in March, they ſeldom fail to bear plenty of fruit, many of which will be very ſweet, and fit for the table when green, but they will not keep long.

They are propagated by inoculating a bud of theſe trees into a plum, almond, or peach-ſtock, in the month of July. The next ſpring, when the buds ſhoot, you may train them up either for ſtandards, or ſuffer them to grow for half-ſtandards, according to your own fancy. The beſt ſeaſon for tranſplanting theſe trees, if for dry ground, is in October, as ſoon as the leaves begin to decay: but for a wet ſoil February is much preferable; obſerve always to bud upon plum-ſtocks for wet ground, and almonds, or peaches, for dry.

African ALMOND-TREE, *Brabejum*, a genus of plants, containing only one ſpecies, *viz.* African, or Ethiopian Almond, with a ſilky fruit; it is a native of the country, about the Cape of Good-Hope, where it riſes to a conſiderable height: it is too tender to live through the winter with us in the open air, ſo that it muſt have a good green-houſe in the winter: but in the ſummer it ſhould be placed in the garden in a ſheltered ſituation.

This plant is not propagated by layers without difficulty, as they are often two years before they make ſhoots ſtrong enough to be taken from the mother plant. The beſt time to perform this operation is in April, juſt when the plant begins to ſhoot, and the layers muſt always be of the former year's roots.

This plant will make a very pretty appearance among other exotic plants in the green-houſe; it riſes with an upright ſtem, which is ſoft, and full of pith within, and covered with a brown bark; the leaves come out all round the branches at each joint, indented at the edges, and ſtand on very ſhort foot-ſtalks; the flowers are produced near the end of their ſhoots, and are of a pale colour, inclining to white.

ALOE, a genus of plants, ranged by Linnæus among the *monogynia hexandria*: and of which there are fourteen ſpecies; 1. Aloe, with nodding flowers, growing upon foot-ſtalks, in form of a cylindrical corymbus, or the common Aloe; 2. Aloe, with nodding, branching, priſmatic flowers, growing upon foot-ſtalks, and ſpreading equally at the brim, commonly called Partridge-breaſt Aloe; 3. Aloe, with flowers growing upon foot-ſtalks, and the foot-ſtalks oval, cylindric, and crooked; 4. Aloe, with ſeſſile, horizontal, funnel-ſhaped, equal flowers, turned back at the brim; 5. Aloe, with ſeſſile, oval, crenated flowers, and the interior ſegments connivent; 6. Aloe, with ſeſſile, triquetrous, two-lipped flowers, and the upper lip turned back, commonly called Cuſhion Aloe; 7. Aloe, with ſeſſile, funnel-ſhaped, two lipped flowers, cut into five revolute ſegments, erect at the top; 8. Aloe, with ſeſſile, two lipped flowers, the upper lip erect, and the under one ſpreading, commonly called Large Pearl-Aloe; 9. Aloe, with ſeſſile, reflexed, imbrecated, priſmatic flowers; 10. The common Barbadoes Aloe; 11. The Socotrine aloe; 12. The Cobweb Aloe; 13. The Guinea Aloe; 14. The Ceylon Aloe.

Of theſe ſpecies there are a vaſt variety, particularly of the firſt ſort: they are all perennial plants, and natives of Africa, and the Indies. Some Aloes are arboreſcent, inclining to make large trees, breaking forth into branches; others are ſo ſmall, that a whole plant does not exceed the ſize of a crown-piece: ſome grow cloſe to the ground, others are more aſpiring, and have their crown of leaves raiſed upon a ſtem, ſomewhat above the earth; they are cultivated as great curioſities in our gardens, and reputed one of their chief ornaments. In reality, there is ſcarce any tribe of plants which affords a more pleaſing variety than theſe, from the odd ſhape of their leaves, the various manner of their ſhooting, and being ſome of them covered, as it were, with pearl.

As the variety of theſe plants is very great, ſo their culture differs extremely. Moſt authors recommend one general method of cultivation, but this is founded on erroneous principles, and therefore will not always ſucceed. We ſhall, therefore, endeavour to obviate this defect, by explaining the different methods that ought to be purſued in the cultivation of theſe beautiful plants.

Purple Socotrine ALOE.

This is a plant of conſiderable beauty, and by a judicious management will flower with us abundantly, and with its full native vigour; Linnæus calls it Aloe with drooping ſubcylindric flowers, placed on foot-ſtalks: but it is generally known by the name of purple Socotrine Aloe.

The root is thick and of an irregular ſhape, covered with a brown bark, and hung with many fibres.

The leaves riſe from it in a beautiful round cluſter: the central ones more upright, the others more and more obliquely.

They are very beautiful in form and colour: their length is a foot and half; they are of a lively green, and they are narrow, thick, and fleſhy: they are terminated by a thorny point, and they have all along each edge a row of pale and pointed, but not very firm ſpines.

The ſtalk riſes in the center of theſe, and is round, thick, ſmooth, of a purpliſh brown, and two feet in height, decorated towards the top with a few leaves.

The flowers attract the eye, and they demand its full attention.

They are extremely numerous, cluſtered into a thick, long ſpike, and of a moſt elegant purple: not a deep, duſky tinct, but pale and lively.

The leaves of this plant being cut, drop out a yellow, bitter juice, not ſtinking, as the common Aloe, but ſweet, and ſomewhat aromatic.

The flowers ſtand naked on foot-ſtalks, without any cup, and are ſucceeded by an oblong ſeed-veſſel, formed of three valves, and containing, in ſo many cells, numerous angulated ſeeds.

Within each flower ſtand ſix ſlender filaments: theſe are of equal length with the body of the flower: and upon them are placed little oblong buttons, which ſhew themſelves beyond its verge.

The ſtyle is ſingle, and of the ſame length with the filaments.

Culture of the Purple Socotrine Aloe.

The elegance of this plant, and its full beauty in flowering, depend entirely upon a proper method of management; and its flowers are ſo great an ornament to whatever place they decorate, that it is very well worth all the pains neceſſary in the cultivation.

The firſt principle on which the ſucceſs in the flowering of it depends, is this: that though it will live in a leſs degree of heat, yet it always flowers more ſucceſsfully in a greater; this has been proved in the Dutch gardens, and muſt be a leſſon to all who raiſe it in ours.

The propagation of it is eaſy. In its native ſtate it throws off abundance of healthy ſuckers, and with tolerable care, will do the ſame here; theſe ſeldom fail to grow up into handſome plants.

The beſt are thoſe obtained from Africa, its native ſoil, and they are very eaſily brought over; but it will riſe to a great deal of beauty, from thoſe taken from plants in our own pots.

A great article, is the ſoil in which they are planted, and there is nothing in which the common practice errs ſo widely.

In Africa this Aloe covers the ſide of ſandy hills, and is ſometimes found near the ſea.

Thoſe who have examined the ſoil in theſe places, have found it full of ſand, and of a looſe, white earth, like mortar; but after proper enquiries, it has been found that this ſubſtance, which has been compared to lime rubbiſh, is nothing more than marle.

We have this in England in great abundance, and the farmers uſe it, though the gardeners are not enough acquainted with its property.

This is lodged in a brittle ſandy earth in theſe native beds of Aloes; and this is the ſoil we ſhould imitate, and may fully equal.

The firſt ſtep, therefore, in the culture of this and other African Aloes, delighting in the ſame kind of ſoil, is to form a mixture of five buſhels of light ſandy earth, from a barren upland paſture; one buſhel and a half of marle, and one buſhel of river mud; let this be piled in a heap together, and turned once a fortnight; and when it has lain a month, let there be ſprinkled over this quantity two ounces of ſea-ſalt. This compoſt will mellow into a light and crumbly ſoil, though, till touched, it holds firmly enough together. It will therefore cling ſufficiently about the root of the plants, and yet not load them or oppreſs their tendereſt fibres.

This being prepared in ſpring, will be fit for uſe about the beginning of Auguſt, which is the moſt ſucceſsful time for propagating theſe plants.

At this ſeaſon, fill as many ſmall pots with this compoſt as you can obtain ſuckers; firſt, laying a piece of tile at the bottom of the pot, to keep open the hole, for if that be ſtopt, the water given for the ſupport of the plant, being detained, will be its certain deſtruction.

The pots being ready, take off the ſuckers carefully from the mother plants. Lay them in the open air, but out of the reach of the ſun and wind, that they may harden a little, for otherwiſe they will rot at the baſe, and come to no perfection, whatever care be taken of them.

When they have lain three days in the air, plant one in each pot, taking care that the earth falls every way cloſe about the bottoms; when they are all planted, ſet them under the ſhelter of a hedge, and ſhade them with mats, but not ſo cloſe as to deny them air.

In this place let them ſtand ten days, and then remove them into a bark-bed, which has but a very gentle heat. Set the pots in this up to their rim, and ſhade the beds with mats, but raiſe the glaſſes to admit air.

When they have in this bed rooted pretty well, they muſt, by degrees, be inured to more and more air, and when they bear this without hurt, it will be time to take them from the bed.

About two months from their firſt planting, they may be taken out of the bed; but as the ſeaſon will be now advanced, and cold nights come on, they muſt not be ſet out into the open air, but taken from the bark-bed to the green-houſe.

They muſt be there placed forwards, and have a great deal of air by day, but they muſt be defended by ſhutting the glaſſes in an evening.

All this time they muſt have frequent gentle waterings, and let the gardener take care that the paſſage at the bottom of the pot be free, and no wet lodged in it.

In October they muſt be removed into the ſtove, and from this time they muſt have frequent waterings, the water having ſtood four and twenty hours in the ſtove, that it may be of the ſame temperature with the air.

With this management they will grow very conſiderably during the winter, and when the ſpring comes on, they muſt be admitted to a more free air by very ſlow degrees, becauſe the winter's growth has made them tender.

Towards the middle of the ſummer they muſt be again removed into the green-houſe out of the ſtove, and gently watered at times.

In the very heat of ſummer it will do them good to ſet them out for a few weeks among the green-houſe plants, expoſed at that ſeaſon, but they muſt not be expoſed to the leaſt danger of cold nights.

This care is to be repeated and continued according to the ſeaſons, and thus the off-ſets will be brought to flower about the third year.

The beginning of Auguſt will be afterwards the beſt time of removing them from their old earth, and giving them new of the ſame kind; this greatly ſtrengthens their growth, and promotes their flowering.

To this purpoſe they muſt carefully be taken out of the pot, and all the earth wiped from about the roots.

Let the ſeveral parts be then examined, to ſee whether any be decayed, and if there be let ſuch be cut off. Then put ſome pebbles into the bottoms of the pots; fill to a proper height with the compoſt, and carefully put in the plant.

Diſtribute its roots regularly, pour in a little of the ſoil very dry between them, and ſhake the pot that it may ſettle among the roots; Then cover them with more, and fix them ſecurely and ſteadily in the pot; put them again into the green-houſe, and give them a gentle watering.

This muſt be occaſionally repeated, and under this advantage of ſhade and ſhelter, moiſture and warmth, they will preſently accommodate themſelves to their new earth, and grow with vigour.

This is the whole care required in nurſing up theſe Aloes to a due degree of ſtrength for flowering; but when the time for that approaches, a particular attention muſt be ſhewn to them.

They will flower as they ſtand in the green-houſe, but the flowers will not there have half their natural beauty. More heat is given by nature for this purpoſe in their own country, and more muſt be allowed them here.

Towards the time of their natural flowering, the ſecond or third year, let the gardener watch his plants, and when he ſees any one ſhoot for a ſtalk, remove it into the ſtove. There let him give it water often, and in little quantities, and always warmed, by ſtanding in the ſtove, to its proper temperature. Thus the flowering ſtalk will riſe with its natural advantages, and will produce a ſpike of more than fifty flowers, opening in a gradual ſucceſſion.

After this the plants will continue regularly flowering every year, and producing a ſufficient number of off-ſets from the ſides, by which a new ſucceſſion may be raiſed, as we have directed.

The care and management of the grown up plants muſt be the ſame with that of the young ones, which we have already given; and no more is required to preſerve them in their full vigour.

Short thick leaved Aloe.

The Aloe we laſt recommended to the attention of the reader, was diſtinguiſhed by its noble aſpect and numerous flowers. We ſhall now deſcribe another which claims an equal regard, but from another ſource; its elegant ſimplicity, and called by gardeners the thick ſhort leaved Aloe. Linnæus calls it Aloe with ſeſſile and three ſquare flowers, formed with two lips, the under one turning back.

It is a ſmaller plant than moſt of the Aloe kind, but never fails to attract the eye, even of thoſe unaccuſtomed to ſuch objects, when placed among the moſt rich and glaring.

The root is compoſed of numerous brown fibres.

The leaves ſpring in a cluſter from its head, and raiſe themſelves partly upright; they are ſhort, extremely thick, ſharp pointed, and turning down with a large thick end, appear there triangular. Their colour is a very fine green, ſtriped in a regular and elegant manner with white, and they are frequently tipped with beautiful red at the point.

This variety of colour added to the ſingularity in form of the leaves, renders the plant very pleaſing when no more appears; but its flowers, when the ſeaſon and right culture call them forth, anſwer to them very well in beauty.

The ſtalk which ſupports theſe riſes in the center of the leaves, and is eight inches high, round, ſmooth, and of a purpliſh colour.

The flowers are neither numerous nor ſpecious; but they appear ſometimes prettily veined, and at others elegantly ſimple.

When the culture has been the leaſt injudicious, if the plant happens to ſhew its flowers, they are of a faint green.

In better culture they often appear elegantly ſtriped with green and white: and where the plant ſucceeds beſt they are perfectly white.

They are ſmall, and they crown the top of the ſtalk raiſed to ſupport them in a looſe irregular ſpike.

Sometimes they grow cloſe to the ſtalk, ſometimes each has its ſeparate ſlender pedicle: theſe are uſually very ſhort, but ſometimes a little longer; and they are always of the colour of that part of the ſtalk from whence they riſe.

The flower examined with a curious eye, is ſound to be tubular towards the baſe, and expanded ar the mouth; it is marked obſcurely with three ridges in the tubular part, and divided in a irregular manner at the opening into two lips; the lower one of theſe always rolls back; and uſually all the ſegments do more or leſs the ſame.

The flower has no cup, but adheres naked to the ſtalk; and within ſtand ſix filaments, each crowned with an oblong button, with a ſingle ſtile in their centre, terminated by a three parted top, or ſtigma.

When the filaments are traced to their bottoms, they will be found inſerted on the receptacle. This is a ſingularity in a flower formed of one petal, and abundantly diſtinguiſhes the Aloe kind from all others.

It is ſingular in this Aloe that it has not the bitter reſinous juice with which the leaves of moſt others abound. When a leaf is cut what runs from it is watery, colourleſs, and perfectly inſipid.

Culture of the ſhort thick leaved Aloe.

We have already obſerved that this ſpecies often loſes half its beauty by an injudicious management: the following method therefore ſhould be carefully obſerved; let the gardener ſeek for a firm loamy earth under the turf in ſome paſture which lies on the deſcent of a hill. He will uſually find it of a yellowiſh brown colour, and covered with an inch or two of mould.

Let him pare off the turf, and this light covering which has ariſen from the rotted leaves of graſs, and the dung uſed as manure.

Let him take a barrow full of the clean loam and mix it with a quarter of a pound of ſalt and a peck of ſtiff marle.

Let theſe be put together early in the ſpring and they be will ready for uſe by midſummer.

The marle will have ſufficiently opened the body of the loam by this time, and the ſeaſon will be come for propagating the plant.

This is very eaſy for the Aloe is ſo full of life that every leaf will grow.

Let therefore half a dozen of the freſheſt and fineſt of the leaves be taken from the lower part of ſome flouriſhing plant. Let theſe be laid on a ſhelf in any room three days, and they will be then fit to ſet.

Fill as many middle-ſized pots with the compoſt. Set one leaf in each, with the part where it adhered to the old plant downwards, and cover it up half the height with the mould. Give it a very gentle watering.

Set the pots in a bark bed of a moderate heat, and ſhade them from the ſun.

Every other evening give them a gentle watering, and in the middle of the day admit ſome air by raiſing the glaſſes. Thus they will root; and in this manner they will be raiſed, like cuttings of other plants, to their perfection. The care and management of them after this muſt be exactly the ſame as that of the other African Aloe already directed, only that they muſt have oftener water; and that the gardener muſt carefully watch the time of their firſt ſhoot for flowering.

When this appears, they muſt be watered twice a day, a very little at a time; and have more warmth than before.

This management will bring on the flowering ſtalks, and whether the flowers be perfectly white, or ſlightly ſtriped with green they will be very beautiful.

It will flower annually and there will never be more greenneſs in the flower, than one, or at the moſt two delicate ſtreaks of it on each diviſion.

Yellow cluſter-flowered Aloe.

The Aloes are in general handſome plants, and they ſucceed one another very happily at this ſeaſon; when flowers in general are ſcarce.

This is an elegant kind; and deſerves the more regard, as it differs from the generality, particularly in the colour of the flowers, as well as in their diſpoſition: the leaves alſo have their ſingularity.

Its characters are ſo ſtrongly impreſſed, that moſt who have written of it, have called it by the name of Aloe.

The root is thick yellow, and ſends out numerous, large, and very long fibres.

The leaves ariſe in a great cluſter, and they are extremely long and narrow, of a triangular ſhape, and of a deep green colour; they are involved together at the baſes, and with good culture, will riſe to five feet in height.

The ſtalk riſes ſingly in the center, and is round, thick, upright, and five feet high. Upon the top of this are placed the flowers.

This is all greatly to the advantage of the plant; but its ſcent is diſagreeable; it is not however ſtrong or offenſive, unleſs purpoſely ſmelt.

The flowers, whoſe form is truly that of the Aloe kind, ſhould have prevented error in reſpect of the genus, but they have not done ſo univerſally.

Culture of the yellow cluſtered Aloe.

The native country of this Aloe, is the cape of Good Hope, and it there lives only in damp rich ſoils. The

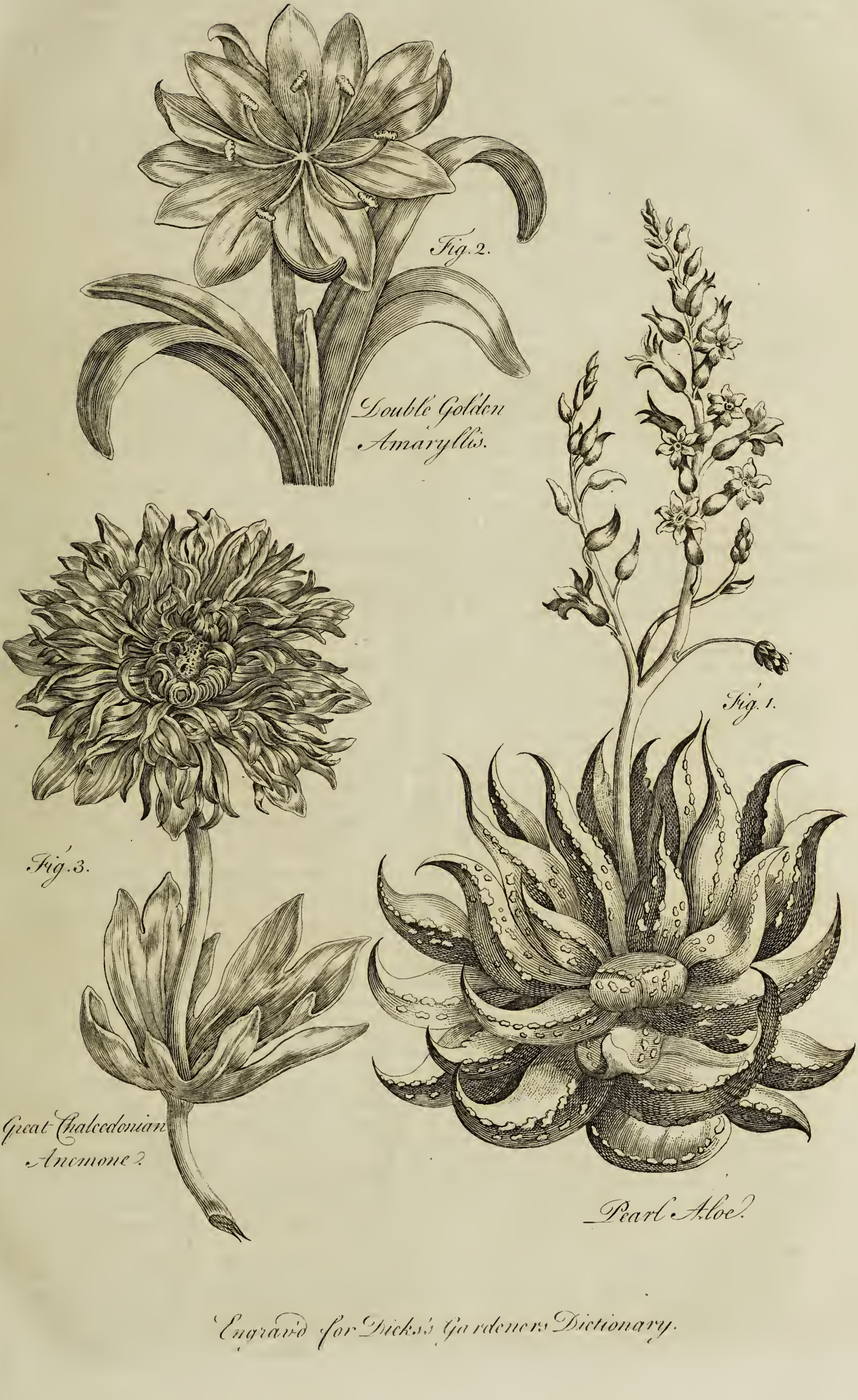


Fig. 2. Double Golden Amaryllis.

Fig. 1. Pearl Aloe.

Fig. 3. Great Chalcedonian Anemone.

Engrav'd for Dicks's Gardeners Dictionary.

black mould which is the common ſoil of the ſwampy places, in that country is its natural ground.

This is very different from the ſoil in which the Aloes in general delight, and it ſhews alſo, that more frequent and large waterings are required for this than for any of the other ſpecies.

According to the inſtructions, here propoſed from nature, let this Aloe have a peculiar compoſt, altogether different from the others, and thus prepared.

Juſt pare away the turf in a wet rich meadow, and take of the fine black mould that lies under it four buſhels, add to this of marle one buſhel, of wood-pile earth three pecks, and one peck of cow-dung.

Let this be laid together two months, or more, turning it once in a fortnight, and it will then be ready for ſervice.

In this the plants are to be propagated by means of thoſe ſuckers, or off-ſets, which they yield in abundance where they thrive tolerably. The time for planting theſe is the middle of July.

They muſt be taken off with great care from the mother plant, and laid two days on a ſhelf in a cool airy place to harden. After this one muſt be planted in each pot in this compoſt, and that with all poſſible care.

When they are all planted, let the pots have a very gentle watering, and ſet them in a warm ſhady place. Here let them ſtand another fortnight without any farther care.

Then bring them to a bark bed, which has a very moderate heat, and ſet the pots two thirds of their height in the bark; draw a mat over the glaſs and thus let them ſtand all day.

In the middle of the next day raiſe the glaſſes a little by a notched ſtick.

In this manner let them be kept in the bed three weeks, and then by degrees more and more hardened; till at length the glaſſes are taken quite off in the middle of a warm day.

After this they muſt be removed into the green houſe, and from thence into the ſtove.

This is the method of bringing them to their greateſt perfection.

They muſt be frequently watered in the ſtove; the water having ſtood three or four and twenty hours to bring it to the temper of the place.

Under this management, they will grow a great deal in the winter; and in ſpring will be in fine forwardneſs towards flowering. They are ſingular in the higheſt degree, even in the leaf, and a great ornament to the place.

White ſpotted Aloe *with tongue-like leaves.*

Few of the Aloes deſerve more than this the attention of the curious in exoticks.

The form and variegation of the leaves which always retain their beauty, give it a pleaſing aſpect the whole year, and when in flower it is extremely handſome.

The root is fibrous, the leaves riſe from its head in a conſiderable number, and are broad, flat, thick, and ten inches or more in length. Their colour is a beautiful ſtrong green, and they are ſpotted in a various and perfect irregular manner on the upper and under ſide with white.

The tips and edges of theſe alſo have their ſingularity. While they are young, they are white and edged with a tranſparent rim; this ſoon loſes itſelf on the edges which grow rough and unequal from its fragments, but on the end of the leaf, it remains longer.

From the boſom of the central leaves come the flowering ſtalks, uſually there riſe two of theſe, but ſometimes there is only one; it is round, not very upright, of a greeniſh colour tinged with red, and two feet and a half high.

This with good culture will be loaded almoſt from the bottom to top with flowers, and theſe diſpoſed in a very elegant manner; they riſe ſingly with long red foot ſtalks of a hooped form, ſo that they are brought near the main ſtalk, though not to touch it, and are intermixed with a fine irregularity one among another.

They are of a tubular form, and their colour is a perfect ſcarlet.

They have no cup but adhere naked to the foot-ſtalk; one petal forms each of them, and it is ſwelled toward the baſe, ſmaller at the neck, and nipped into ſix ſegments at the mouth; ſix filaments, and a ſingle ſtyle are placed in it, as in the other Aloes.

Culture of this Aloe.

It is a native of Africa and there thrives in the clefts of rocks, and in the moſt barren ſoils. This refers its culture to two articles; that it be placed in ſmall pots, where the root may have no more than in its natural growth, and that the ſoil be poor; for the reſt, the culture we have given for the other African Aloes will do with it.

The old plants produce off-ſets every ſeaſon; and theſe are to be planted in the manner we have before directed, and they will flower the ſecond year.

Prickly ſpotted leaved Aloe.

The Aloes all have beauty, and their variety is alſo a great recommendation.

The ſame conveniences and care needful for one kind will raiſe many more, and their flowering at a ſeaſon barren of moſt other things, adds to their eſtimation; we have for this reaſon given the culture of many of the Aloes and ſhall of ſeveral more.

None claims that regard we have ſhewn to the genus more than this, whoſe leaves as well as flowers are full of ſingularity and beauty.

The root is formed of many thick reddiſh fibres. The leaves riſe ſometimes naked from the ground, and ſometimes are ſupported on a kind of ſtalk, thick, ſhort, and filmy. They are fleſhy, oblong and broad; their colour is a deep green, ſpotted on both ſides irregularly with white: and they are edged with ſharp and ſtrong thorns variouſly diſpoſed, and terminate in a very robuſt, ſharp point.

The ſtalk riſes in the centre of the leaves, and is round, firm, upright, of a purpliſh colour on the lower part, and paler upwards.

The films towards its top are numerous though ſlight, and they of a mixed whitiſh green colour, daſhed with purple.

The flowers terminate the ſtalk in a beautiful manner. They riſe nearly together, and they have ſeparate, long whitiſh foot-ſtalks; theſe ſpread out from the top ſo as to form a kind of umbell, and they are long, hollow, and of a fine red.

The claſs to which the Aloe belongs is to be read in theſe, and we have had occaſion to explain it at large before; we ſhall therefore only obſerve here that the flower as in other ſpecies of the ſame genus, is formed of a ſingle petal, that it adheres naked to its foot-ſtalk without a cup; and from a long and tubular body of an irregular form, opens into ſix ſegments at the rim, or frequently one more.

Culture of this Aloe.

The culture of this Aloe having been in general laid down before, as well as the character of the claſs, we ſhall not, except in regard of ſuch ſpecies, as from their nature require particular management, enlarge here by repetition, but name the general articles.

This is one of the African Aloes, which produces ſuckers in abundance, therefore it is eaſily propagated: its ſoil is in its natural climate, looſe, dry, and ſandy; therefore the general compoſt we have directed for the Aloe kinds, will perfectly anſwer its purpoſe.

The ſuckers are to be taken from the old plants in the latter end of ſummer and they ſhould be laid upon a ſhelf two or three days before they are ſet: they are then to be carefully planted in the middling pots of the compoſt, and from that time raiſed with the ſame care we have directed for the other kinds.

Warted coral Aloe.

The everlaſting variety of the Aloe kinds has had ſufficient attention among our collections; and there are few which more deſerve it than the preſent.

The root is thick and pale. The leaves riſe from this in a cluſter, and ſplit into two arrangements: they are ſo very ſingular and beautiful, that if the plant had nothing more to recommend it, none would refuſe it a place in their collections.

They are eight inches long, moderately broad, thick, and ſomewhat triangular in form.

Their colour is a very ſtrong and elegant green; and they are covered on both ſides with white tubercles in the manner of warts. Theſe have no regular ſhape or form, but lie ſcattered in a thouſand figures upon every part of the leaves to the extremity, where they terminate in a point.

The flower-ſtalk riſes to the height of two feet and a half, and is round, of a gloſſy red, reſembling a piece of poliſhed coral. Towards the top it droops with the weight of a long ſpike of flowers.

Theſe are oblong, hollow and divided at the rim into ſix irregular ſegments which turn back a little. Each flower has a ſhort and ſlender foot-ſtalk of a paler red than the principal ſtalk, on which it hangs in a drooping poſture.

The general colour of the flower is red, but toward the baſe it is greeniſh; and from this part there riſe ſeveral lines, or very narrow ſtreaks of white. Theſe, as well as the green baſe, are moſt diſtinct in the unripe flowers; for in thoſe fully mature, the red is almoſt univerſal.

The reſt of the flowers are like the others of the Aloe kind, which we have deſcribed before. It is formed of one piece; it hangs to the foot-ſtalk without a cup, and within there ſtand ſix filaments, which are of the length of the tubular part, or a little more, with a ſingle ſtyle among them.

The ſeed-veſſel which follows is oblong, and formed of three furrows, and divided into three cells in each of which are numerous ſmall ſeeds.

Culture of this ALOE.

This is one of the African kinds which produce a great number of off-ſets and are eaſily propagated from them.

The beſt ſoil for it is made in the following manner; mix equal parts of dry paſture-earth and ſand: add half the quantity of ſoft chalk. To four buſhels of this mixture put a peck of lime. Mix theſe well, and let it lie out a year.

Then fill as many pots as there are to be ſuckers raiſed. Let the ſuckers be carefully taken from the old plants, and laid on a ſhelf in an airy room, till the bottom, where they adhered, is dry: they are then fit to be planted.

The pots muſt be very ſmall, and the whole management the ſame as in the other African kinds, which we have mentioned already.

If this compoſt be not made in time, the common kind we have already directed for the African Aloes, will anſwer the purpoſe: but it is in this particular mixture we have ſeen the plant riſe to its full perfection.

Pearl ALOE. See plate 1, fig. 1.

The root of the Pearl Aloe is thick, and variouſly divided. The leaves are very numerous, extremely ſingular in form, and whether we regard their ſhape or diſpoſition, full of beauty.

They riſe cluſtered together, and diſplay themſelves variouſly, ſome nearly upright, ſome flat upon the ground, and others at different angles.

All are of the ſame ſhape and hue: and the points of all turn upwards; they are thick and fleſhy: their colour a very lively green, and they are covered in a various and irregular manner with ſpots, and riſing tubercles: theſe are of a firm ſubſtance, and in colour of pearly white, and they are moſt conſpicuous on the younger leaves.

The ſhape of the leaf in this plant is not leſs remarkable than the ornament: it is of an oval form in the whole, but the point is immoderately long and ſlender; toward this point the leaf grows triangular, and the extremity is tipped with crimſon. This, with the fine green of the body of the leaf, and its pearly protuberances, give a delicate variety: but the points are moſt red on the old leaves, and theſe have the tubercles leaſt diſtinguiſhable.

The ſtalk is two feet high, and towards the top uſually divides into three or four branches: it is round, green, ſmooth: purpliſh at the bottom, and without leaves.

The flowers want colour to make them beautiful, but they are numerous and ſingular enough in form: they cover the tops of all the branches in a kind of ſpikes; each has its very ſhort and ſlender footſtalk, and is tubular in the body, and expanded in ſix ſegments at the rim. There is ſome tinge of red often at the baſe of the flower, and the reſt is of a whitiſh green. The diviſion at the rim is ſo far ſingular, that it forms two rude lips, of which the upper turns a little back.

There is no cup to this flower, but in its hollow part riſe ſix filaments, and a ſingle ſtyle.

It is a native of Africa, and is to be propagated as the other African Aloes, from ſuckers.

AMARANTH, *Amaranthus*, a genus of plants, ranged by Linnæus among the *pentandria monœcia*: and of which he diſtinguiſhes eleven ſpecies.

1. Amaranthus, with round heads, flowers with the ſtamina embracing the ſtalks, and pointed ſpear-ſhaped leaves; 2. Amaranthus, with three ſtamina to the flowers, round heads growing cloſe to the ſtalk, and ſpear-ſhaped leaves growing thinly on the ſtalks; 3. Amaranthus, with three ſtamina to the flowers, round heads growing from the wings of the ſtalks, round ſpikes, and oval-heart-ſhaped leaves, with ſhort footſtalks; 4. Amaranthus, with three ſtamina to the flowers, erect ſpikes, growing cloſe, and oval blunt leaves; 5. Amaranthus, with three ſtamina to the flowers, which grow in cluſters from the wings of the ſtalks, and ſpear-ſhaped, obtuſe leaves; 6. Amaranthus, with flowers collected in heads, on the ſides of the ſtalks, oval, blunt leaves, and ſcattering ſtalks; 7. Amaranthus, with five ſtamina to the flowers, cylindrical, pendulous, and very long ſpikes; 8. Amaranthus, with five ſtamina to the flowers, cylindrical ſpikes growing horizontally, and a ſmooth ſtalk; 9. Amaranthus, with five ſtamina to the flowers, cylindric, erect ſpikes, and a ſmooth ſtalk; 10. Amaranthus, with five ſtamina to the flowers, ſpikes proceeding from the wings and extremities of the ſtalks, a flexible ſtalk, and recurved branches; 11. Amaranthus, with five ſtamina to the flowers, upright cylindrical ſpikes, and ſpines at the points of the ſtalks.

Culture of the AMARANTHUS.

Theſe are all annual plants; the firſt and ſecond ſorts are natives of India, and have been long cultivated in the Engliſh gardens, for the beauty of their variegated leaves; eſpecially the firſt ſpecies, the leaves of which are of three colours, green, yellow, and red; theſe colours are very elegantly mixed: and when the plants are in full vigour, the leaves are large, and cloſely ſet from the bottom to the top of the ſtalks, and the branches form a ſort of pyramid, ſo that there is not a more beautiful plant than this, when it is in full luſtre, from the leaves of this plant being party-coloured, like the feathers of parrots.

About the middle of February provide ſome new horſe-dung, and let this be thrown up in a heap, and in eight or ten days it will be in a proper condition for making the bed, which ſhould be about two feet and a half thick of dung. Let the top be levelled, and then ſet on the frame and glaſs.

When the burning-heat of the bed is over, lay on the earth, which muſt be rich, light, and perfectly dry, and broken pretty ſmall, by rubbing it between the hands.

The depth of the earth on the bed muſt be about five or ſix inches, and the ſurface made very level and ſmooth.

The bed being thus finiſhed, the ſeed muſt be ſown on the ſurface, and covered about a quarter of an inch deep with light earth, well ſifted: or you may draw ſhallow drills from the back to the front of the bed, ſow the ſeeds in theſe drills, and cover them about a quarter of an inch, as above directed.

As ſoon as the plants appear, let them have freſh air every day, when the weather is any thing mild, and let them have now and then gentle ſprinklings of water, obſerving to cover them every night with glaſſes.

About the middle or latter end of March let there be another hot-bed, hot-bed, about thirty inches thick, levelling the top, and ſetting on the frame. When the great heat is evaporated, let a quantity of light, rich, dry earth, ſufficient to cover it about ſix inches thick, be laid equally on the ſurface of the dung. When the earth is warm, prick the plants therein at three or four inches diſtant from one another, and give them a gentle ſprinkling of water. Put on the glaſſes, but remember to raiſe them a little every day, to let out the ſteam: and be very careful to ſhade the plants from the ſun, till they have taken root.

As ſoon as they are rooted and begin to puſh, they ſhould every day have freſh air, by raiſing the glaſſes to a conſiderable height. They muſt alſo have frequent ſprinklings of water, though but a little at a time.

In April another hot-bed ſhould be prepared: for if theſe plants are deſired to appear in any tolerable degree of perfection, they muſt, at this time, be brought forward, by the aſſiſtance of a regular and due degree of artificial heat; and where this is properly attended to, the plants will be ſtrong, their leaves elegantly variegated, and their flowers large and beautiful.

The bed intended for this purpoſe ſhould be made of the beſt horſe-dung, which has been previouſly well-prepared; it ſhould be two feet thick at leaſt. Level the ſurface, place the frame thereon, and when the burning heat of the bed is over, cover it equally with light, rich earth, not ſifted, but well broken with the ſpade and the hands, ſix or ſeven inches thick. And when the earth has laid on the bed about twenty-four hours, it will be in a proper condition to receive the plants, which muſt be taken up very carefully with balls of earth about their roots, and planted in the new bed, full ſix inches diſtant every way, giving them, at the ſame time, a light watering, to ſettle the earth properly about their roots.

This being done, put on the glaſſes, and let the plants be ſhaded from the ſun, till they have taken root. A ſingle mat thrown over the glaſſes, when the ſun is ſo powerful as to cauſe the plants to flag, will anſwer the purpoſe.

Remember to raiſe the glaſſes a little height every day, that the ſteam of the bed may paſs freely off; and if there ſhould be much ſteam in the bed, it will be proper to raiſe the glaſſes a little at one of the corners at night, hanging a mat before the opening, to prevent the cold air from blowing on the plants.

As ſoon as the plants have taken root, and begin to ſhoot, let them have freſh air freely, every day, when the weather is calm and mild: for this will greatly ſtrengthen the plants; but the glaſſes muſt be ſhut down every night, provided there be no great ſteam in the bed, and a mat or two ſpread over them. Remember alſo to refreſh the plants, frequently, with moderate waterings, for this will greatly promote their growth.

When the plants have advanced ſo much in height, as nearly to touch the glaſſes, let the frame be raiſed at the bottom about ſix inches, in order to give them full liberty to ſhoot: and continue to raiſe the frame, in proportion as the plants advance in height. But, remember, whenever you raiſe the frame, to cloſe up the vacancy at the bottom, that no air may enter but at the proper place. This may be done, by nailing mats to the bottom of the frame. If you have a multiplying frame, this labour may be ſaved, and the plants will thrive the better. Theſe frames are deſcribed under the article Hot-bed, which ſee.

In about the third week in the month of May, thoſe plants, which are intended to be drawn to a large ſize, ſhould have another hot-bed.

This bed ſhould be made almoſt wholly within the ground. And in order to this, let a trench of the length and breadth of the frame intended to be placed on the bed, be dug eighteen inches deep. Let this trench be filled with well-prepared horſe-dung, ſhaking it in regularly, and beating it well down with the fork, till the dung be ſix inches above the ſurface of the ground, ſo that the bed from the bottom to the top, will be two feet deep of dung.

The bed being thus made, ſet on the frame and glaſſes, which will draw up the heat ſoon, and the bed will be ready to receive the plants in five or ſix days after the bed is finiſhed.

The plants muſt now, in general, be potted before they are ſet into the bed. The pots for this purpoſe muſt be about the middle ſize, and the plants muſt be placed in them, when the bed is juſt in right order to receive them.

Having the pots and ſome freſh earth ready, let as much of the earth be put into each pot as will cover the bottom about three or four inches: then take up the plants, each with a ball of earth about its roots, and place one plant with its ball intire in the middle of each pot, and fill up the vacancy with the freſh earth, within half an inch of the top of the pot, and let them be moderately watered.

Place the pots immediately upon the hot-bed, as cloſe together as can be; obſerve that the cavities between the pots are perfectly well filled up with earth: and this ſhould be done according as the pots are placed upon the bed, bringing the earth up to the rims of them.

When the pots are all in, put on the glaſſes, obſerving to tilt them up a little at the back of the frame every day, to let in freſh air to the plants.

The plants muſt be ſhaded, occaſionally, from the ſun, for the firſt week or ten days; let mats be ſpread over the glaſſes the firſt three or four days, about eight or nine o'clock in the morning, and taken off about four in the afternoon; but after this let the plants have more ſun, every day, till they are able to bear it fully.

They muſt be duly ſupplied with water, during the time they are in this bed: and they ſhould have a moderate quantity given them once in two days.

Obſerve that when the plants advance in height, to raiſe the frame, to give them full room to grow.

When there is the conveniency of a drawing frame, (deſcribed under the article Hot-bed,) it ſhould now be placed over them: but where there is no ſuch convenience, let one of the common frames be uſed, according to the following method.

Fix at each corner of the bed an upright poſt, about four feet high: and on the inſide of each poſt let ſome augur-holes be bored, hollowing ſix inches between the holes.

Then provide four iron, or wooden pins, one for each poſt, and fit for the holes.

When the frame wants raiſing, let the pins be fixed in the poſt at a convenient height, and ſet the frame upon the pins. When the frame wants to be raiſed again, fix the pins a hole higher, and ſo proceed as the plants riſe in height.

Mind to cloſe up the vacancy at bottom, at each time of advancing the frame; this may be very eaſily done, by nailing ſome thick mats round the outſide of the frame.

Theſe are the methods for drawing theſe kinds of plants, where there is not the conveniency of a glaſs caſe: and if they are well managed, may be brought to a very handſome ſize.

AMARYLLIS, *Lily-daffodil*, a genus of plants, ranged by Linnæus under the *hexandria monogynia*, and of which he has enumerated nine ſpecies.

1. Amaryllis, with many flowers from the cup, and thoſe equal, and of a campanulated form, commonly called the crimſon Amaryllis, and by ſome writers the American Lily; 2. Amaryllis, with a roundiſh, two-edged ſtalk, and with numerous, equal campanulated flowers, generally called the ſtriped Amaryllis; 3. Single, irregular-flowered Amaryllis, with the filaments and ſtyle delineated, uſually called the Jacobean Amaryllis; 4. Single-flowered, with the flower upright, and the threads ſtooping, commonly named the golden Amaryllis; 5. Single-flowered Amaryllis, with a regular flower, and drooping filaments, generally called the golden Amaryllis, by ſome authors the autumnal Daffodil, and by others the African Lily; 6. Double golden Amaryllis, called by ſome the double autumnal Daffodil; 7. Many-flowered Amaryllis, with tongue-like leaves, and irre-

gular flowers, often called crimſon, oriental Amaryllis; 8. Many-flowered Amaryllis, with regular flowers, and ſharp pointed leaves, commonly called purple Ethiopian Amaryllis; 9. Many-flowered Amaryllis, with the petals turned back, and the filaments and ſtyle ranged cloſe together, generally known by the name of the Guernſey Lily.

Crimſon AMARYLLIS.

The moſt vulgar eye is ſtruck with the beauty of this plant, and it very well deſerves the title of elegant; its proper name is *Amaryllis*, with many flowers from the cup, and thoſe equal, and of a campanulated form, and with the threads crooked.

The root is large, and of a rounded form; the leaves are long and flaggy, but of a freſh and very lively green. The ſtalk is round, firm, upright, green, and juicy. The flowers ſtand at the top, ſeveral riſing from one point together, out of a common ſcabbard, and ſpreading out each way to form an elegant cluſter.

Each flower is very large, and extremely elegant; its colour is a fleſhy crimſon, and in the centre there is a large circle of yellow, terminated every way by a kind of rays; each ſeparate flower grows naked to its footſtalk, without a cup: the ſcabbard at the top of the main ſtalk ſerving that office for all.

The body of the flower is compoſed of ſix broad, waved, and pointed petals, riſing ſmall and ſlender from the baſe, and ſpreading elegantly at the opening. Within ſtand ſix long and very conſpicuous filaments, with large buttons at the top; the filaments droop and bend, and their buttons riſe upward. In the centre of theſe ſtands the ſtyle, a little ſhorter than the filaments, bending in the ſame manner with them, and parted at the top into three ſlender ſegments. The ſeed veſſel is oval, and contains, in three cells, numerous, moderately large ſeeds.

Culture of the Crimſon AMARYLLIS.

It is a native of the warmeſt parts of Armenia, and its roots are brought thence in abundance; our people complain that they are rarely good: but this is owing to an error in the management.

The roots, when taken up, are planted, through a miſtaken care, in boxes of damp mould, by being removed at a wrong time they are weakened, and they rot with the abundant moiſture.

Every one knows that roots of all this kind of plants will bear to be kept ſeveral months out of the ground, taking them up at proper ſeaſons; and thus they may be tranſported, without fear of accidents. It is natural in theſe plants for the flowers to appear before the leaves.

About the firſt week in September a naked ſtalk riſes to ſupport the flowers; ſoon after come the leaves, and they keep green till May; all theſe plants have their time of growing, and their period of reſt. Theſe are the months in which the root is employed to take up nouriſhment, and to convey it to the ſtalks, the flowers, the ſeed-veſſels, or leaves: but towards the end of May the leaves fade, and nothing elſe riſes till the ſucceeding September: this is the time of reſt in the plant, but not all of it; the fibres are ſhot out in Auguſt for the nouriſhment of the September ſtalk, ſo that the time of abſolute reſt is the end of May, all June, and the beginning of July. Within this period let the roots be taken up in the native place of the plant's growth: let the earth be taken from them, let them be ſpread to dry gently, and then tyed up in bags; thus they may be ſent over to England in their full vigour.

There will be thus no error in taking them up while growing, no danger of their rotting in coming over: they will be kept in the ſame condition, as if brought from ſome careful gardener, who had taken them out of the earth in the due courſe of his profeſſion, and they will grow freely.

They require heat to produce their flowers, and the beſt management is to plant them in a compoſt half mould, one quarter rotted wood, and the other quarter ſand. In this they are to be carefully planted, and the pots to be ſet in a hot bed of tanners bark; leſs heat will keep them alive, but thus they never fail to flouriſh.

Striped AMARYLLIS.

This ſpecies of Amaryllis deſerves an equal place with the former, for though leſs glorious in the colour, it makes amends by a moſt pleaſing and regular variegation.

The root is an oblong bulb, of a white colour, and from its bottom ſends out a multitude of white and downy fibres.

The leaves are large, and of a fine green; they are very long, moderately broad, and hollowed from the centre.

The ſtalk riſes not in the midſt of this tuft of leaves, but at their ſide, and it is roundiſh, but double-edged, firm, upright, juicy, and in colour purpliſh.

Its height is two feet and a half, and at its top ſtands, at its firſt appearance, a great bud, which afterwards burſting, diſcloſes ſix or eight noble and erect flowers.

The ſcabbard which had ſurrounded them as a general cup in the bud, divides to give them paſſage, and hangs in purpliſh fragments from the top of the main ſtalk, where the flowers take their origin.

Theſe are ſupported on ſo many ſlender footſtalks, and each is large, beautifully formed of ſix pointed petals, and of a ſnowy white on the inſide; their outſide is of a leſs glittering white, and is ſtreaked along with purple; ſometimes there runs only one line of this upon the ſeveral petals; ſometimes there are more, but the others are always fainter than this in the centre; and the tips of the ſegments are, on their under ſide, often purpliſh. The ſeed-veſſel ſucceeding each, is oval, and contains, in three cells, a number of large ſeeds.

The colour of the leaves, and the bold and noble aſpect of the bunch of flowers, give this plant a magnificent beauty to the eye; but it demands attention on another account; the fragrance is very delightful and very ſingular, thoſe who recollect the delicate perfume of the Lily of the valley, will be able to form an idea of the ſcent of theſe flowers; the ſmell is of the ſame kind, but much more exalted.

Culture of the ſtriped AMARYLLIS.

Experience ſhews there are not any two of the exotic bulbs which require exactly the ſame culture, or the ſame ſoil. This is a native of the iſland of Ceylon, and, there, lives in the lower grounds, where it has a deep and mellow earth, and ſome degree of ſhelter. The compoſt that beſt agrees with it, for we have no ſimple earth that is fit, is this: mix two buſhels of river mud, one buſhel of wood-pile earth, and half a buſhel of cow-dung; let this be put together in ſpring, and it will be ready by the time it is wanted.

The proper way of raiſing the plant is from the bulbs, and to have it in full perfection theſe muſt be brought from Ceylon.

They may be taken up with care at the time of the leaves fading, and kept out of the ground two months; after which they ſhould be planted in a pot of light earth, and they will thus come over in good condition.

When they are received here, they ſhould be carefully cleaned, and planted each in a ſeparate pot of the compoſt thus prepared for them, raiſing the ſurface of the mould one inch above the root. When thus planted, they muſt have a little water, and be ſet in a bark-bed of very moderate heat; here they will thoroughly root themſelves, and they are thence to be removed into the ſtove, where they will flower with good management, in all the luſtre they have in their native country.

The principal care is to pick away dead leaves, to ſtir the earth now and then at the top of the pot, and to water them frequently, a little at a time, with water which has ſtood in the ſtove long enough to be of the ſame temperature; leſs heat will keep them alive, and a leſs careful management ſometimes bring them to flowering; but with this they will be ſurpriſingly better than when they have been treated more ſlightly.

Jacobean AMARYLLIS.

This plant demands the attention of the curious, as one extremely ſingular, and equally beautiful.

The root is a large round bulb; its outer coat is black.

The leaves are long, broad, of a firm ſubſtance, and of a deep green.

The ſtalk, which riſes on one ſide of theſe, is round, but a little flatted, of a delicate pale red and naked. On its top appears an oblong filmy ſcabbard, pointed at the top, and of a ſomewhat deeper red than the ſtalk. When the ſtem has reached a foot in height, this ſcabbard burſts ſideways, and diſcloſes the flower, whoſe petals ſpread in their own way, three drooping, two above them horizontal, and one erect.

Their colour is the moſt perfect ſcarlet, and in form they reſemble the broad ſword our heralds draw in armour.

Within this flower, defended by the three lower petals, appear ſix filaments and a ſingle ſtyle.

The filaments are crimſon, and have yellow buttons.

The ſtyle is of a paler colour, fleſhy, and ſplit into three parts at the top.

The middle one of the lower petals ſurrounds them half their length, and this petal is in the ſame manner ſurrounded by the two which are next it, for more than a third of its length, and as theſe turn downward, the filaments turn upward.

The ſeed-veſſel which follows is of an oval form, and in three cells contains numerous ſeeds.

Culture of the Jacobean AMARYLLIS.

The plant is a native of South-America, and in its native climate thrives beſt, and flowers moſt boldly where there is a rich earth with ſome moiſture, and with ſand enough to make it always free and looſe; this muſt be the guide for a proper compoſt, and the reſt will depend entirely upon the ſuiting our warmth to its climate.

Let a compoſt be prepared thus: Mix equal parts of pond mud, wood-pile earth, and mould, from under the turf in a rich meadow; to three barrels of this mixture, add two buſhels of coarſe ſand, and one of rotted cow-dung. This, after repeated trials, has been found to raiſe the plant preferably to any other natural ſoil or mixture.

The method of propagating it, is by roots obtained from America, or by off ſets from thoſe in our own gardens; but of theſe, when they can be obtained, the former is vaſtly preferable. A flower raiſed from the American root in the compoſt here directed, exceeds the common kind, beyond all that an unexperienced imagination can conceive.

We have ſaid that the heat allowed the plant muſt be proportioned to that of its natural climate; thouſands of theſe roots have been preſerved when there were no ſtoves, but they flower weakly. The regulated heat of a ſtove alone comes near that of the common air in South-America; and the plant will never riſe to its perfection otherwiſe. The very period of flowering may be altered by this management, and to this alone we can owe ſo glorious a flower at ſo dead a ſeaſon. In nature it throws up the flower-ſtalk very irregularly, and this way we take the full advantage of her wildneſſes.

The ſeaſon for planting off-ſets is in the end of July.

As many pots muſt be filled with the compoſt as there are roots, and they muſt be placed in theſe with care, and covered an inch and half above the top. Theſe pots ſhould be placed in a warm ſheltered part of the garden, and once in four days gently watered.

When the ſhoot appears, they ſhould be ſet among the green-houſe plants, then in the open air, and watered every other evening; after this they muſt be removed early into the green-houſe, and thence, at the approach of winter, into the ſtove.

This is the management of the full-grown roots brought from America, as well as of the off-ſets raiſed here, and thus after having ſent up a flower-ſtalk on one ſide of the root, in September, they will ſhoot out another at the end of November, from the other ſide, and flower in the dead of winter in full glory.

Golden AMARYLLIS.

The root of this plant is large, roundiſh, black on the outſide, white within, juicy, and hung with many fibres.

The leaves are long and moderately broad, waved at the edges, pointed at the end, and of a deep blackiſh green.

The ſtalk is firm, round, and of a pale green. It riſes in the midſt of the leaves, and is but an inch or two in height.

On its top ſtands a ſingle flower, large, of a golden yellow, and very beautiful. It burſts from an oblong ſcabbard, and is upright, hollow and regularly ſhaped.

The petals are ſix, broadeſt in the middle, ſharp pointed, and ſmall at the baſe. Within ſtand ſix filaments, crowned with oblong buttons, and in the midſt of them a ſtyle, with a three parted head.

The ſeed-veſſel which follows the flower is of an oval form, and has three valves, and three cells, with numerous ſeeds.

Culture of the Golden AMARYLLIS.

Beſides the great beauty and ſingularity of this flower, the eaſe of its culture is no ſmall recommendation; it is encreaſed eaſily by off-ſets, though raiſed more ſucceſsfully by ſeeds, and in either way requires little attention.

It is a native of many parts of Europe, eſpecially of Spain; it riſes there in damp ground very abundantly, and paints the meadows like our Crowfoot.

The ſoil to be prepared for it ſhould reſemble this which it has naturally, and the part of the world wherein it is wild, will inform the gardener that it requires no ſtove or green-houſe to bring it to perfection.

In order to cultivate this plant ſo as to produce it in its utmoſt perfection, let a compoſt of the following ingredients be prepared.

A barrow of earth from under the turf in a rich meadow, a buſhel of pond-mud, and a peck of old cow-dung. Throw theſe in a heap all winter, and in ſpring let them have an addition of ſome ſoot; let them be turned up again to the weather, and remain in that manner till Auguſt.

This is a compoſt well ſuited not only to this, but to many other of the plants brought from the meadows into our gardens.

In the latter end of Auguſt let the mould be dug out of a border in a part of the ſeminary, open to the ſouth-eaſt, and let this compoſt be thrown in; on this when the ſurface is levelled, let ſome ſeeds of the plant ſaved with care from the earlieſt flowers, and ſuch as have blown ſtrongeſt, be ſowed moderately thick; ſift over them a quarter of an inch of the ſame compoſt, and throw ſome hawthorn buſhes upon the bed.

All the care it will require farther is weeding at times, and watering when the mould is dry. The young plants muſt be thinned where they ſtand cloſe, and at two years growth they may be planted out into a bed at four inches diſtance.

The gardener, when they come to flower, will find among them a great deal of variety, deeper and paler flowers, larger and ſmaller plants, and broader and narrower leaves. Theſe have been conſidered by ſome as the marks of diſtinct ſpecies; but he will know in what manner to conſider them when he has raiſed them all from the ſame ſeed.

After this, the better kinds are to be ſeparated, and propagated by off-ſets. But we adviſe the gardener on this, as on many other occaſions, now and then to repeat the article of ſowing; the trouble is very trifling, and the reward a certain improvement.

Double Golden AMARYLLIS. See plate 1, fig. 2.

This plant moſt of the writers on gardening call the double autumnal Daffodil; the root is large, bulbous, and covered with a thick ſkin.

The leaves are five or ſix, they are broad, not very long, obtuſe, fleſhy, and of a deep green.

The ſtalk is round, thick, and three inches high; at its top ſtands one large flower elegantly doubled and ſpread open, of the colour of pure virgin gold, from whence the plant derives its name.

The flower is compoſed of a number of oblong regular petals, broadeſt in the middle, and obtuſe. In the centre ſtand ſix filaments, ſmall toward the top, and crowned with oblong buttons placed ſideways. Underneath the receptacle of the flower, is placed a roundiſh furrowed rudiment, from which riſes a ſingle ſtyle with a ſmall head, divided into three parts.

Culture of the Double Golden AMARYLLIS.

In the latter end of March let a bed be made up in a ſhady part of the nurſery, with freſh meadow earth raked clean from ſtones, and on this let the ſeeds be ſcattered with an even hand; ſift over them a quarter of an inch of the ſame mould, and let the ground be defended by an hawthorn buſh, and at times gently refreſhed with water.

From a quantity of ſeed well managed at the ſecond, if not at the firſt ſowing, there will be produced one more of theſe double flowers, which muſt afterwards be nurſed with care, and encreaſed by off-ſets.

For theſe a good bed ſhould be provided in the ſeminary; they ſhould be ſeparated, if ever ſo ſmall, every time the old root is taken up, not only for the ſake of encreaſing their number, but to keep that root in the full glory of its flowering.

They muſt be planted at ſix inches diſtance in the nurſery bed, and there weeded and occaſionally watered, and when the leaves fade, covered with freſh mould, to ſhelter them during winter; thus they will ſoon arrive at perfection, and will flower as well as the parent root.

Repeated ſowings are adviſable, for the ſake of obtaining from time to time a ſucceſſion of theſe double flowers; for it has been found that, though every neceſſary care has been taken of the roots, they loſe their ſtrength after a number of years, and flower more faintly.

Crimſon Oriental AMARYLLIS.

Among all the ſpecies of Amaryllis enumerated by Linnæus, this may perhaps claim the preference, both for its ſingularity and beauty.

The root is very large, round, ſwelled out in the middle, covered with a thick ſkin of a brown colour, and ſends from the baſe numerous, very thick and long fibres. The leaves are oblong, broad, obtuſe, and of a freſh green with a tinge of greyiſh.

The ſcabbard which contains the flowers burſts from the ground entire, very large, oblong, pointed, and tinged ſtrongly with ſcarlet, or with purple.

As this raiſes itſelf above the ground the ſtalk appears, and by degrees attains the height of fourteen inches; it is flatted, very thick, and of a lively green, more or leſs covered with that elegant red which was at firſt ſo conſpicuous upon the covering of the flowers. Before the ſtalk has attained half its height, the ſcabbard burſts, and the flowers appear in their large buds cloſe compacted into a kind of conic head. Soon after the covering has burſt, they begin to ſeparate, and at length form a vaſt and very noble head, nearly of a ſpherical form; ſome continue erect, or nearly ſo, while others throw themſelves off obliquely, and ſome hang downwards. Theſe all riſe together from the head of the ſtalk, where there are alſo placed ſome reddiſh films.

Every flower has its footſtalk, and theſe are three inches long, flatted in the manner of the main ſtem, and tinged like that with a lively red.

The flowers themſelves are large, and of a very delicate red; each is compoſed of ſix petals, five of which naturally turn a little inward, and the ſixth ſeparating from them, ſtands outward.

This is what occaſions Linnæus to call it an irregular flower.

In the centre ſtand ſix crimſon filaments, crowned with large yellow buttons, and ſurrounding a ſingle ſtyle, whoſe head is divided into three parts. Each flower is ſucceeded by a large ſeed-veſſel, and even theſe make no mean appearance.

Culture of the Crimſon Oriental AMARYLLIS.

This elegant and noble ſpecies is a native of the Eaſt Indies, and with us will never flower ſo perfectly as in a ſtove. The ſeeds are to be obtained from its native place of growth for propagation, or the roots brought thence; for when taken up at the time of the leaves fading, they will bear to be brought over very well.

The method of propagating it by ſeeds is tedious and precarious; but if they have been collected in the Indies from good plants, and well hardened, they will keep good, and will grow in a pot of fine mould plunged in a bark-bed; and they muſt thence be removed into the ſtove.

The roots brought over from thence, though they alſo often miſcarry, are a better and ſecurer method. When theſe are received, they muſt be carefully cleaned, and a pot of a moderate ſize muſt be prepared for each of them. Two or three pieces of looſe gravel muſt be thrown into the bottom of the pot, to keep the hole for the diſcharge of water from ſtopping up, then the pot muſt be filled more than half with ſome of the light rich compoſt, and the cleaned root ſet upright, and more of the compoſt thrown in, till it is covered three quarters of an inch.

In this ſituation it is to remain, with now and then a very little water, only to keep the mould from being too dry, till it begins to ſhoot. If the ſeaſon be favourable, it will do beſt all this time in the open air, in a warm ſheltered place; from the time that it begins to ſhoot, more water is to be allowed, but ſtill in moderation; and as ſoon as the weather grows cool it muſt be removed into the ſtove, and from this time it muſt be allowed often a little water. It will thus eaſily be brought to flower; after a year or two the roots will produce off-ſets, and theſe muſt be managed with great care.

Every year the old root muſt be taken out of the pot, and cleaned, and as ſoon as the off-ſets have been taken off, it muſt be planted again in freſh compoſt. The beſt ſeaſon for this is about a month before the ſhooting of the leaves in ſpring.

The off-ſets ſeparated from the old roots, muſt be managed juſt as thoſe roots were at firſt; they muſt be planted with great care in pots of the ſame compoſt, and ſet in a hot bed of bark. The mould in theſe muſt be occaſionally refreſhed with moiſture, and a little air muſt be allowed in good weather.

When they are thus brought to a condition of flowering, they muſt be taken into the ſtove, and to keep them in perfect good condition, they muſt be ſet in the bark, and continued there throughout their whole time; they will flower any where within the air of the ſtove, but their full perfection is never ſeen, unleſs they are in pots up to the rim in tan, and at times watered.

The ſeaſon of flowering in this plant, when kept in the ſtove in this manner, is quite uncertain; but on that muſt depend the management of the roots, and whole regulation.

Purple Ethiopean AMARYLLIS.

There is ſcarcely a flower raiſed ſuperior to this; whether we conſider the number, ſize, colour, or fragrance of the bloom, and very few can be ſaid to equal it.

The root is large, roundiſh, and of a duſky yellow colour; from its baſe run many very thick, white fibres.

The leaves are numerous, and they lie ſcattered irregularly upon the ground; they are very long, moderately broad, of a pale green, and ſharp pointed, and they are marked with large longitudinal fibres.

The ſtalk is very thick, eight inches high, flatted, firm, and of a pale green, often ſtained with red. There are no leaves nor rudiments of leaves on this, but at its top a membraneous ſcabbard, which contains the flowers. Theſe are numerous, very large, and extremely beautiful; they riſe in a kind of conic head, twenty or more in number, and ſeparate to ſome diſtance as they open. Their colour in the bud is a pale crimſon, ſtained in different places with purple; but as they open they grow deeper, and when full blown, they are entirely of a ſtrong and fine purple; their ſcent is in the higheſt degree fragrant, and towards evening it is overpowering.

Each flower is compoſed of ſix petals, of a lanceolated form, equal in ſize, and opening regularly every way; and there is no cup to them beſide the general ſcabbard.

In the centre ſtand ſix filaments crowned with oblong, incumbent buttons.

The rudiments of the fruit is oblong, and furrowed; it ſtands underneath the receptacle of the flower, and from it riſes a ſtyle equal in length and thickneſs to the filaments, with a ſmall three-parted head.

The ſeed-veſſel when ripe is oval, and formed of three valves; it is divided within into three cells, and in each are many ſeeds.

Culture of the Ethiopian AMARYLLIS.

It is a native of Ethiopia, and lives there in looſe and warm ſoils; here it will require the choice of ſuch a compoſt as reſembles that kind of earth, and all the aſſiſtance of additional warmth.

The roots will bear to be kept out of the ground a conſiderable time, when taken up at a proper ſeaſon, and may thus be brought hither from their native country. When they are received, which ſhould be early in ſummer, a compoſt ſhould be prepared for them of ſome of the light kinds, from one of the heaps made up for other purpoſes, with a fifth part of rotted dung from an old melon-bed.

As many pots muſt be got ready as there are roots; ſome looſe gravel muſt be thrown into the bottom, and over this two inches of the mould; upon this the root muſt be placed, and the pot filled up, ſo that it may be covered two inches. The pots muſt then be ſet under a frame, and the earth at times moiſtened. The ſhoot will appear in five or ſix weeks, and after this they muſt be watered more frequently, and have more air.

When this has advanced to ſome height, they muſt be removed into the ſtove, where they will flower in perfect beauty.

The flowers do not come forth all together, but in a long ſucceſſion, ſo that one plant will be three weeks from the firſt flower to the decay.

After this the pots muſt be refreſhed every ſpring with ſome new mould, the top of that in the pot being taken off for that purpoſe; and once in two years the roots muſt be taken up, and the whole quantity turned out. Its place muſt be ſupplied with freſh compoſt, the roots muſt be cleared, and their off-ſets taken away, and planted in other pots, to bring them to a condition of flowering; and this way the plant will be propagated extremely well.

Many-flowered AMARYLLIS *commonly called Guernſey* LILY.

This plant is no more a Lily than it is a native of the iſland whence it is named.

It is certainly one of the fineſt flowers the world produces, and well deſerves the care and culture by which it may be brought to flower with us, like other plants.

The root is a large bulb.

The flowers appear at one ſeaſon, and the leaves at another. Theſe latter are not without their beauty, for their form is regular and pleaſing; oblong with a moderate breadth; and their colour a moſt lively green.

The flower-ſtalk riſes naked from the root and it is a foot and a half high, of a pale green decorated toward the bottom with innumerable ſpots of a bloody purple; towards the flower it is paleſt, but often tinged with a light fleſhy hue. On the top of this ſtalk appears at firſt a long ſcabbard, ſerving as a general cup, and when it burſts, there ſpreads out a conſiderable number of flowers of the moſt conſummate beauty.

They are large and beautifully formed; each is ſupported on its ſeparate foot-ſtalk riſing from the head of the main ſtem in the boſom of the ſcabbard. The ſeveral petals of which the flowers conſiſt, ſpread themſelves wide as if to diſplay their full bloom to the eye; and they are waved a little and turned back.

Their colour is the moſt perfect red, and they are ſpangled all over as it were with gold: this with a deep red vein running along their middle, gives them a glory and ſplendour, when viewed in the ſun, ſuperior to that of all other plants.

The filaments are very long, firm, entire, and of a delicate fleſh colour, and their buttons are deep purple; the ſtyle which riſes in the centre is much longer than theſe; it is beautifully terminated by a ſtigma divided into three parts, and of a purpliſh colour.

Culture of the Guernſey LILY.

The plant, though named from Guernſey, is a native of Japan; there it flowers wild all autumn in the ſands; and from thence it has by ſome chance been thrown upon the coaſt of Guernſey, and is an ornament to all its gardens.

The roots are generally brought over thence in the beginning of autumn; and when they have once flowered, are neglected, from a notion that they will not eaſily be brought to it again, but with the following method they will flower the ſucceeeding years better than the firſt, and afford off-ſets that will alſo riſe to flowering.

Let the greateſt care be taken to have the beſt roots from Guernſey. Theſe ſhould be taken up as ſoon as the green leaves which ſucceed the flowers are decayed.

For their reception let the following compoſt be prepared.

Mix a barrow of mould from a rich dry paſture, with half a barrow of wood-pile earth, a buſhel of rotted cow-dung, and half a buſhel of river ſand; ſcatter over this a quarter of a pound of ſalt, and leave it to the weather.

When the roots come over, fill up half way with this compoſt as many pots as there are of them; ſet one root on the earth in each, very evenly on its bottom; and fill up the pot with more of the ſame compoſt, till the top of the root is covered an inch.

Give all the pots a very gentle watering, and let them be ſet in a ſhady place.

Here they are to ſtand till the ſhoot of the flower-ſtalks appear; this will be toward the beginning of October, and they are then to be ſet out in an opener and warmer place, but defended from ſharp winds; and here they are to be at times refreſhed with water, that has ſtood ſome hours in the ſtove.

The flower-ſtalk will thus riſe to its natural height, and the flowers burſt their ſcabbard and gradually open.

They muſt then be placed where rains cannot injure them; and where the ſun has not too much power; and they will thus continue five weeks in full glory.

Theſe roots may be brought to flower annually, and all that time will be raiſing a ſupply for ſucceeding ſeaſons. To this purpoſe let them be thus managed;

Dig up a piece of ground in the ſeminary, big enough to hold all the pots. Set them up to the rim in the earth, as ſoon as they have done flowering; and place over the bed ſome tall hoops. Upon theſe in bad weather draw a cloth, but in milder times let them ſtand open all day. Thus they will be preſerved through the winter; and in ſummer they are to be managed as already directed in the other ſpecies of Amaryllis.

Toward July when the root is preparing for its ſhoot, let an inch depth of the earth in the pot be taken off; and freſh compoſt of the ſame kind put in its place; and every third year let the roots be taken out of the pots, cleaned and placed in them again with freſh compoſt.

This is to be done as ſoon as the leaves are decayed, and the off-ſets are to be then taken off, and raiſed in ſeparate pots. They will come to flower in about three years.

AMBER-TREE, *Anthoſpermum*, a genus of plants ranged by Linnæus among the *Polygamia dioecia*, and of which there are only two ſpecies, viz, male and female Amber-tree.

This is conſidered as a very curious, though at the ſame time, a very tender plant, and therefore preſerved in the gardens of thoſe who prefer variety to trouble and attention. It is however eaſily propagated by cuttings, during any of the ſummer months, in a border of light rich earth. They will take root in ſix weeks time, provided they are watered and ſhaded as the ſeaſon may require: then they ſhould be taken up with a ball of earth of their roots, and planted into pots filled with light ſandy earth, and may be expoſed to the open air until October; at which time they ſhould be removed into the conſervatory, where they ſhould be placed as free as poſſible from being over-hung by other plants; and during the winter ſeaſon, they ſhould be often refreſhed with water, but ſhould not have too much given them at one time.

The beauty of this ſhrub is in its ſmall ever-green leaves, which grow as cloſe as heath; and being bruiſed between the fingers, emit a very fragrant odour. Theſe plants muſt be frequently renewed by cuttings, for the old plants are very ſubject to decay, ſeldom continuing above three or four years.

It is but of late years, that there have been any of the female plants in the garden, for all thoſe which were formerly in the gardens were males; which being propagated by cuttings had been continued, ſo that no ſeeds were ever produced in England till within a few years paſt, when ſome ſeed was received from the Cape of Good Hope, from which I raiſed many plants of both ſexes, and a few among them which have hermaphrodite flowers, which have ſeeds, from which many plants have been raiſed.

AMENTACEOUS *Flowers*, ſuch as have an aggregate of ſummits hanging down in the form of a rope, or cats-tail: it is alſo called a julus.

AMENTUM, a term uſed by botaniſts for what is generally called in Engliſh a cat-kin. See the article CAT-KIN.

AMETHYST, *Amethyſtea*, a genus of plants, ranged by Linnæus among the diandria monogynia; and of which there is only one ſpecies, viz. mountain upright Amethyſt.

It is an annual plant and a native of the mountains of Siberia. It is propagated by ſowing the ſeeds in autumn, in the place where the plants are to remain. When they come up, let them be thinned, and kept clear from weeds; and if they are permitted to ſcatter their ſeeds, a new ſucceſſion of them will ariſe every year, without any farther trouble.

AMPHITHEATRE, a term uſed by gardeners to ſignify certain diſpoſitions of trees and ſhrubs on the ſides of hilly places, which if the hill or riſing be naturally of a circular figure, always have the beſt effect. They are to be formed of evergreens, ſuch as Hollies, Phillyreas, Lauruſtines, Bays, and the like; obſerving to plant the ſhorteſt growing trees in the front, and thoſe which will be the talleſt, behind, ſuch as Pines, Firs, Cedars of Lebanon, and the like. Amphitheatres are ſometimes formed of ſlopes on the ſides of hills, covered only with turf, and, when well kept, they are a great ornament to large gardens.

ANEMONE, *Wind-flower*, a genus of plants, in which Linnæus has comprehended not only the Anemone, properly ſo called, but alſo the Pulſatella, or Paſque-flower, and the hepatica, or noble liver wort, three diſtinct genuſes, according to other botaniſts; and ranged them among the poliandria polygonia.

There are only ſix ſpecies of the Anemone, 1. The wild or wood Anemone with a large white flower. 2. The wood Anemone with a large red flower. 3. Wood Anemone with a blue flower. 4. Small white flowering Virginian Anemone. 5. Narrow leaved Anemone with a ſingle flower. 6. Broad leaved golden Anemone.

But the amazing number of varieties which culture has made in the colour and ſtructure of the flowers of this genus, have been, by many authors, deſcribed as diſtinct ſpecies, and accordingly Tournefort has enumerated no leſs than one hundred and ſixty-eight different ſpecies of the Anemone.

The firſt grows wild in many parts of Germany. The ſecond is a native of England, and found in the woods. The third is alſo found, growing without culture, in a wood near Wimbleton in Surry, but it is not certain whether they were not originally planted there. The fourth is a native of North-America; and the fifth and ſixth grow ſpontaneouſly in the eaſt, from whence their roots were originally brought to England; but have been ſince ſo greatly improved by culture as to render them ſome of the chief ornaments of our gardens, during the ſeaſon when they are in full bloom. Theſe flowers are of a great variety of colours, as red, white, purple, and blue; and ſome of them finely variegated with all the above colours. Some of the flowers are large and double, and, when properly managed, are extremely beautiful.

Culture of the ANEMONE.

The month of May is a very proper ſeaſon for ſaving the ſeeds of Anemones, and preparing the compoſt for them. With regard to the firſt article, the gardener muſt diſtinguiſh carefully the three kinds of Anemones, as they are characteriſed by the condition of the flower, the ſingle, the ſemi-double, and the double. With this firſt diſtinction in his memory, let him go over the beds of Anemones in full flower, and ſelect plants for ſeed. The ſeeds of the ſingle are excellent for the production of the common ſemi-double, and ſome double flowers. Theſe have the full ſtrength of nature, but they are not to be ſelected for the preſent purpoſe, becauſe more time and reſowing would be required. The ſeeds of the double flowers are not fit: many of them ripen more, and in thoſe which do, they are weak and often imperfect.

This throws the choice upon the ſemi-double flowers, that is, on ſuch as have ſome ſeries of ſmall petals within the large, yet have not the whole body filled with them, but have plain, conſpicuous, and vigorous heads of ſeeds in their centre, ſurrounded by threads, with fair and perfect buttons.

From theſe flowers perfect ſeeds may be obtained, and they have not the firſt change to paſs, as they muſt, if the flower in which they were ripened had been abſolutely ſingle.

Among the ſemi-double flowers which have this character, let him ſelect ſuch as have upright, tall, and ſtrong ſtalks, and have the flower large and well coloured.

Theſe let him mark with ſticks; tying up the ſtem, to prevent the wind having too much power upon it, and then ripen the ſeed with all poſſible attention.

To this purpoſe, let him take up the roots that are neareſt theſe; ſtrew a ſmall parcel of ſome light rich compoſt about the plants, and every evening give them a gentle watering. As ſoon as they are marked, let a compoſt be mixed up for the ſeed of the following ingredients.

A barrow of rich mould from under the turf in a dry hilly paſture, a buſhel of river mud, three pecks of rotted cow-dung, of hard large ſand, and of earth from under a wood-pile, each a peck and a half.

Throw theſe in a heap, and once in ten days turn them, working them well together to break the clods, mix the ingredients, and prevent the growth of weeds.

This will be preparing while the ſeeds are ripening.

When the heads have acquired their bigneſs, leave off watering the plants; and as ſoon as they begin to be looſe upon the ſummit, cut off the heads with a piece of the ſtalk, and lay them on a papered ſhelf to harden.

After a week or ten days ſeparate the ſeeds from the head; let them lie a week more to harden, and then paper them up for ſowing.

In the ſecond week of Auguſt chuſe a part of the ſeminary that is open to the ſouth-eaſt, and is upon a riſing part of the ground. Dig out the mould, fill up the place with the compoſt, and lay the ſurface level.

Mix with the ſeeds ſix times their quantity of dry paſture mould, and let them be perfectly blended with it, ſo as not to lie in cluſters together. Then ſow them with this mould carefully upon a bed, in a ſtill calm evening; ſift over them a quarter of an inch of the compoſt, and lay upon the bed ſome hawthorn buſhes; not to cover it up cloſe but to defend it from injuries.

Every day, an hour before noon, draw a mat over the whole bed. The buſhes will ſupport this, and give air underneath. Let it be removed at four in the afternoon, and when the weather is cloudy let it be wholly omitted. The only purpoſe of this ſhelter, is to prevent the too powerful effect of the mid-day ſun at that ſeaſon, which would dry up the compoſt to abſolute duſt, and burn the ſeeds.

If no ſhowers fall, the bed muſt once in ten days be watered: but in this there will be great care required. If it be done in a haſty manner, half the ſeeds will be waſhed out of the ground.

A ſmall-pot, with a fine noſe, muſt be uſed, and this ſo managed, that the water may fall ſoftly upon the ſurface, like a gentle ſhower, refreſhing and moiſtening the earth, without diſturbing it.

The buſhes are all this time to remain on the ground, except it ſhould be neceſſary to remove them, to pick out any chance weeds.

The firſt week in October let them be taken away intirely, and let a couple of reed hedges be hung on hinges, at the north and eaſt ends of the beds; theſe muſt be drawn in to defend the ground in ſevere weather, but at other times left open.

In the middle of October the young plants will appear; the bed muſt then be carefully weeded, and if they grow too cloſe in any part, they muſt be thinned.

Two or three hoops muſt now be placed over the bed, and a canvas or mat be laid in readineſs to draw over it on occaſion. With theſe defences prepared in time, the plants will be kept alive through the winter. The bed muſt be now continually weeded, that not the leaſt ſhoot of any thing may be ſeen upon it but the plants.

If gentle ſhowers fall, they muſt be admitted freely to the ground: if it be a ſeaſon of drought, their place muſt be ſupplied by waterings; but when heavy rains fall, the canvas, or mat, muſt be drawn over the hoops, to ſhelter the young plants from them.

This is neceſſary on two occaſions: for theſe haſty ſhowers, which fall with violence, will often waſh away the mould from the tender roots to their certain deſtruction; and often, ſo much wet will ſettle on the bed, as lying about the tendereſt fibres, will rot them, or the firſt froſts of winter following them, will have the more effect upon the mould, from its wetneſs, and will harden it in clods, with cracks between, which will admit the cold air, and deſtroy them. This is the care needful in regard to rains.

In froſty weather the mat, or canvas, muſt be drawn over the hoops every evening, and removed every morning: or when very ſevere kept on all day; and againſt the cold and nipping winds of early ſpring, the reed fence is to be turned upon its hinge, according to the quarters from whence they blow.

Thus will the plants be preſerved in vigour through the winter. In ſpring they muſt be kept carefully weeded, and as the ſummer advances, ſometimes gently watered.

In June the leaves will decay. Let the roots then be carefully taken up.

Let the compoſt be dug out, and a freſh quantity, prepared for the purpoſe, be put in, and let the bed be enlarged, ſo that it may hold the roots at a due diſtance.

Let the ſurface be levelled, and lines drawn acroſs and length-ways, at four inches aſunder: and in the centre of each ſquare, place one root with the bud upwards; ſift over theſe half an inch of mould, and manage them in reſpect of weeding and watering as at firſt, placing the reed-fence to the ſouthward, to ſhade the ground from the full ſun.

The third week in October give the bed a very careful and perfect weeding: then ſift on half an inch more of the compoſt, and defend it as the former winter.

Early in the ſpring the young plants will appear very vigorous and ſtrong, and a great many of them will flower.

The gardener is not to judge of their value from theſe their early and maiden flowers: they will often promiſe a great deal, but their perfection is in the ſucceeding ſeaſons.

This ſpring let a larger quantity of compoſt be prepared, and let the plants now be well attended.

When the leaves are decayed, let them be taken carefully out of the ground, clean them from the mould that hangs about them, pick away the decayed ſtalks, and then ſpread them upon a mat in an airy room, where the ſun does not ſhine in.

When they have lain here long enough to harden, pick off any mould that might be left about them at firſt: tie them up in ſmall bags, not too many together, for fear of their gathering damp, and hang them up out of the way of accidents, or vermin.

The laſt week in Auguſt chuſe a place in the flower-garden for planting them: let it lie open to the ſouth-eaſt, and defended from the full eaſt and north, mark out a ſpace ſufficient for the roots, and dig away the mould three quarters of a ſpade deep; bring in the compoſt prepared for this purpoſe of the ſame ingredients, and in the ſame manner as the firſt.

Throw it into the place, and lay it twelve inches thick, levelling the ſurface.

Thus let it lie ten days, then break it lightly with a ſpade, half ſpade depth, and rake it even; draw away all clods and ſtones, and on the clean bed draw lines lengthways and acroſs, ſix inches diſtant.

Take the roots out of their bags, and place one of them carefully in the middle of each ſquare; ſift on more of the compoſt, and cover them two inches and a half. Care muſt be taken that the bud of the root lies uppermoſt: and the ſurface of the bed muſt be now finiſhed with a fine rake, laying it a little rounding, to throw off the water.

If no ſhowers fall within a week after their planting, let the whole be gently and regularly watered, and the more curious ſorts managed with great care.

Heavy rains and high winds would greatly injure them: and the ſun, if permitted to ſhine upon them fully, would, in a very ſhort time, cauſe them to decay.

In the month of May they ſhould, therefore, be ſcreened from all thoſe occaſionally, by a covering of hoops and mats; this will not only preſerve the beauty of the flowers, but will continue them a longer time in bloom.

The hoops muſt be kept conſtantly over the beds, and the mats, or canvas, ſhould always be in readineſs, in order that they may be ſoon drawn on, whenever it is neceſſary for the defence of the flowers.

The hoops which ſhould now be erected pretty high, ſhould be nailed acroſs to ſtakes about a yard high, fixed at due diſtances, on each ſide the bed.

When the plants are in bloom, let the mats be drawn over the hoops every ſunny day, about nine or ten o'clock, and let them remain till four or five in the afternoon, and then take them off again.

The mats muſt alſo be drawn on at all times when it rains hard, and when the winds are ſtrong, for ſuch weather would beat down the flowers, and break their ſtalks.

The flowers ſhould alſo be ſheltered every night, when there is an appearance of bad weather. And the mats, or canvas, be always ready for drawing over the hoops, when there is occaſion to ſhelter the plants.

The mats ſhould be drawn over every day, when the ſun ſhines, about nine or ten in the morning, and ſhould be taken off about four or five in the afternoon. The mats muſt alſo be drawn over the hoops, to defend the flowers from heavy ſhowers of rain, when ſuch at any time happen.

Where this ſheltering and ſhading theſe kinds of flowers is duly practiſed, it will preſerve them a long time in their fulleſt beauty, at leaſt a fortnight longer than if they were to be fully expoſed; and they will alſo be much finer.

Remember that the hoops which are fixed acroſs the bed for the ſupport of the mats, be not too low, for that would draw the flower-ſtalks up weak, and render the colours of the flowers very faint.

The beſt way to preſerve the bloom of theſe plants without weakening them, is as follows: but it muſt be done in the beginning of April.

On each ſide of the bed let ſome ſtout ſtakes be fixed upright in the ground, at twenty inches, or two feet diſtance from each other, and let each ſtake be three feet high; to theſe let hoops be fixed croſs the bed: the covering of mats, or canvas, are to be drawn over them occaſionally, and there will be air ſufficient to preſerve the flowers ſtrong, and their colours lively.

Some perſons who are remarkably curious, erect an awning, or ſhade, of hoops and mats over theſe flowers, high enough to walk under, taking care that the mats come low enough on the ſides, to keep the ſun from darting upon the bloom.

ANISE, *Aniſum*, one of the ſpecies of the Anagalis, or Pimpernel; it is an annual plant, growing naturally in Egypt, but cultivated in the ſouthern parts of Italy, from whence the ſeeds are annually imported into England.

The lower leaves of Aniſe are divided into three lobes, deeply indented on their edges; the ſtalk riſes to about a foot and a half in height, dividing into ſeveral branches garniſhed with narrow leaves, cut into three or four narrow ſegments, terminated by pretty large looſe umbels, or rays, ſtanding upon pretty long foot-ſtalks. The flowers are ſmall, and of a yellowiſh white: the ſeeds are oblong and ſwelling. The ſeeds of this ſhould be ſown the beginning of April, upon a warm border, where the plants are to remain; when they come up they ſhould be thinned, and kept clean from weeds, which is all the culture this plant requires, but it is too tender to be cultivated in England for profit.

ANGELICA, a genus of plants, which has no Engliſh name. It is ranged by Linnæus among the *pentandria digynia:* and contains four ſpecies; 1. Angelica, with leaves compoſed of an unequal number of lobes, or the common garden Angelica; 2. Angelica, with equal, oval, ſpear-ſhaped, ſawed leaves; 3. Angelica, with the extreme part of the leaves joined, and terminated with a foot-ſtalk; 4. Angelica, with equal, oval, cut, and ſawed lobes to the leaves.

The firſt ſpecies of this genus is a biennial plant, which grows naturally in the mountains, and by the ſides of the rivers of Lapland. It is propagated by ſeeds, which ſhould be ſown ſoon after they are ripe, in a moiſt ſoil. When the plants are about half a foot high, let them be tranſplanted at three feet diſtance one from another; the ſecond ſort is a perennial plant, and a native of this country, and moſt others in the north of Europe; but is never cultivated in our gardens; the third and fourth ſpecies are natives of Canada, and are biennial plants, which may be propagated, by ſowing their ſeeds in autumn, and managing them afterwards in the manner directed for the firſt ſort; they are ſeldom admitted into gardens, but for the ſake of variety.

Berry-bearing ANGELICA, *Aralia*, a genus of plants, ranged by Linnæus among the *pentandria pentagynia:* and of which there are four ſpecies; viz. 1. Berry-bearing Angelica, with woody, prickly ſtalks, and unarmed, hairy leaves; 2. Berry-bearing Angelica, with prickly ſtalks, and unarmed hairy leaves; 3. Berry-bearing Angelica, with a leafy, herbaceous, ſmooth ſtalk; 4. Berry-bearing Angelica, with a naked ſtalk.

The firſt ſpecies grows naturally in Virginia, and is generally propagated by ſeeds, which as they do not ripen in this country, muſt be procured from North America. They ſhould be ſown in ſpring, in pots filled with light earth, and placed in a ſhady ſituation. Let them be kept clean from weeds, and in the autumn following plunged into an old bed of tan, or placed in a warm ſheltered border.

In a ſevere winter it will be proper to cover them with ſtraw, or peaſe-haulm; and in March let the pots be plunged into a moderate hot-bed. When the plants are come up, they ſhould frequently be refreſhed with water, and conſtantly kept clean from weeds. In May they ſhould be inured to the open air; and when they are removed out of the bed, they ſhould have a ſhady ſituation. In October the pots ſhould be placed under a frame, to protect the plants from hard froſts; but in mild weather they ought to have the free air. In ſpring, before they begin to puſh out their leaves, they ſhould be carefully taken out of the pots, and ſeparated. Part of them ſhould be planted ſingly into ſmall pots, and others may be planted in a bed of light earth in a warm ſituation. Thoſe planted in pots ſhould in the following ſummer have a ſhady ſituation, and the next winter be ſheltered again. The ſpring following they may be ſhaken out of the pots, and planted where they are deſigned to remain. Thoſe planted in the bed will require to be protected from the froſt the firſt winter, by covering the ſurface of the ground with old tanners bark; and in hard froſt ſome ſtraw, peaſe-haulm, or any light covering, ſhould be laid over the bed. Theſe plants may be continued two years in the bed, by which time they will be ſtrong enough to be tranſplanted to the places where they are deſigned to grow.

This plant may alſo be propagated by its roots: for as they ſpread far into the ground, ſo if they are laid open, and ſome of the ſtrongeſt are ſeparated from the plant, and left in the ground, they will put out new ſtems; or if part of the roots are taken off, and planted on a moderate hot-bet, they will puſh out the ſtems in plenty, and ſo may be eaſily increaſed.

The ſecond ſort is a native of China, aud may be propagated in like manner.

The third and fourth ſpecies are natives of North America, and are perennial plants, eaſily propagated by ſowing the ſeeds in autumn. When the plants are come up, let them be kept free from weeds; and in the autumn following, ſoon after their leaves decay, be tranſplanted into the places where they are to remain. They may alſo be propagated, by parting of their roots in autumn, and planting them at a good diſtance, one from the other. The plants are hardy, and will thrive in any ſoil or ſituation.

Early-Shrub ANONIS, a very elegant plant, of which there is no Engliſh name, ranged by Linnæus among the *diadelphia decandria*, and called by that author Ternate-leaved Anonis, with cluſtered flowers, placed uſually in threes, and with films to the baſe of the leaves, ſurrounding their ſtalks.

This beautiful plant is regular in its growth, raiſed with little trouble, and valuable, at once, for the early appearance of its flowers, and for their long continuance.

The root is browniſh, tender, and furniſhed with many long and ſtraggling fibres.

The ſtem is round, firm, and two feet and a half high, branched from the bottom to the top, and forming itſelf naturally into a handſome ſhrub.

The bottom is often purpliſh: the branches are of a greyiſh green, and they are ſlender, tough, and pliable.

The leaves are placed at diſtances, in a wild and irregular, but not unpleaſing manner. They riſe three together: but often there will be one or two tufts of young ones in the boſom of the elder, ſo that the whole cluſter amounts to ſix or nine. They are long, narrow, obtuſe, and elegantly ſerrated at the edges.

Their colour is a fine freſh green, and their rib is often purpliſh: uſually there is no footſtalk; but on the lower part of the plant, in ſome places, there is a ſhort one, ſupporting the three leaves, with a film at the baſe.

The flowers are extremely elegant; they are large, and are diſpoſed in conſiderable tufts, terminating all the branches. Uſually three grow upon one foot-ſtalk, and there will be five or ſix, ſuch as at the top of each branch.

Their colour is a lively crimſon on the outſide; within they ſeem painted by a curious hand, with lines and ſtreaks of white; and the very cup, from whoſe hollow they riſe, is reddiſh.

The ſtudent, viewing all more cloſely, will find the conſtruction very elegant and ſingular. The cup is hollow, formed of one piece, and divided at the edge into five pointed ſegments, which turn upwards.

The flower is regularly papilionaceous, and is compoſed of four unequal petals. The vexillum is large, of an oval heart-like form, and depreſſed at the ſides; the Alæ are oval, and half as long as this; the Carina is pointed, and longer than the Alæ.

In the body of the flower are lodged ten filaments: nine of them coaleſce for a great part of their length, and there is a tenth naturally looſe: but ſometimes this will be united alſo with them; the ends are free, and are turned up, and they have ſmall buttons.

The ſtyle is ſingle, and terminated by a roundiſh ſmall head.

The ſeed-veſſel is a ſhort hairy pod, in which are a few kidney-ſhaped ſeeds.

The coaleſcence of nine among theſe filaments, and the one remaining ſingle, ſhews the plant to be one of the Diadelphia Decandria; the claſs and ſection of moſt papilionaceous plants.

Culture of this ANONIS.

It is a native of the ſouthern parts of France, and of ſome other European provinces; with us it requires no peculiar care or defence, the open ground will preſerve it, and being once rooted, it will endure many years, and be every ſeaſon ſtronger, and better furniſhed with bloom.

It ſhould be raiſed from ſeeds, and the ſoil ſhould be ſuch as nature ſhews it beſt loves.

In France it flouriſhes beſt wild, in high and barren grounds, where there is depth of mould.

Its long fibres ſpread far, and pierce deep, ſo that they find reſources of nouriſhment, where the eye ſees only barrenneſs.

Let the gardener fix upon a dry warm ſpot in his ground, and take out the mould three ſpades deep. Let him throw into the place ſome dry paſture earth, mixed with a little ſoot, and a good quantity of old cow-dung.

Let him cover this an inch with the common mould of the border, and upon that ſurface ſcatter ſome of the ſeeds, in the third week in September.

Let theſe be covered with a ſtraw's breadth of fine mould ſifted over them, and let him throw a few buſhes over the ground, to keep off accidents.

When the young plants appear, free them from weeds, and give them in a morning, once in four days, a gentle watering.

In ſpring thin them to a foot diſtance, taking up the weakeſt plants, and after this weed them carefully, break the earth boldly between them with a trowel, for they root deep, and every other day give them a gentle watering. Take off the lower ſide ſhoots, to train them with a little ſtem, and they will riſe to their due height the firſt ſeaſon, and flower vigorouſly.

Let none ſtand this year for ſeed; take off the heads as the flowers fade, and the plants will by this continue flowering three or four months. Gardeners think this exhauſts the roots, but they err; it is the ripening of ſeeds that weakens this kind of plant, not the moſt profuſe flowering.

The plant thus eſtabliſhed in the ground will require no more care; but it will every year be more beautiful.

ANTHERÆ *Apices*, or *Summits*, the little knobs or tops in the middle of a flower, ſupported by the ſtamina, or chives, being the ſeed-veſſels in plants, and containing ſmall oval particles, of various colours, ſuppoſed to be a kind of male ſperm, which when ripe impregnates the flower, and renders it fruitful.

ANTHOLIZA, a genus of plants for which there is no Engliſh name. It is ranged by Linnæus among the *triandria Monogynia*, and contains two ſpecies; 1. Antholiza, with one declining ſtem, generally called Scarlet Antholiza; 2. Antholiza, with all the ſtamina deſcending.

The firſt ſpecies is a very beautiful plant, and has withal a ſingularity that attracts every eye, and never fails to pleaſe.

The root is large and fleſhy, the leaves are of a ſingular form; they are long, narrow, ſharp pointed, ribbed length-ways, and in all reſpects of the kind we call graſſy; but that they have ſhort footſtalks: from theſe they riſe hollow at the baſe, and grow broader as they continue their courſe, to a third part of the length, whence they grow narrow again.

The ſtalk riſes in the midſt of theſe, and is round, hairy, and a foot and a half high.

The flowers grow in cluſters from the ſides of the ſtalk; they are placed on ſhort footſtalks, ſurrounded by ſome ſmall membranaceous leaves at the baſe.

They are very large, and of extreme ſingularity and beauty. Their colour is on the outſide a very elegant pale red, and a deep blood red within. They are long, large, hollow, and have an upright lip.

The ſeed-veſſels are three-cornered, and the ſeeds are numerous and large.

It has no cup beſide the few irregular leaves before named, which ſerve to ſeparate the ſeveral flowers that grow in the ſame cluſter.

The body of each flower is formed of a ſingle petal; this is ſmall and tubular at the bottom, it thence riſes to a conſiderable height, extending all the way in breadth; but it is not in this part rounded, but flatted; at the top it forms a kind of gaping mouth, compoſed of two very irregular lips.

The upper lip is long and narrow, undulated, and ſtrait, and has two ſmall ſegments at the baſe. The under lip is ſhort, and is divided into three parts.

In the body of the flower are lodged three filaments, they are very long and ſlender, and are terminated by pointed anthera.

Two of theſe follow the courſe of the upper lip, and one is placed in the lower. The ſtyle is ſingle, and is placed with two upper filaments, and at its top ſplits into three capillary ſegments, which turn downwards.

The extreme ſingularity of this flower will not prevent the ſtudent from perceiving to what claſs in the Linnæan ſyſtem it belongs.

It is a native of Africa, and grows there in ſands near rivers. This ſhews what is its proper culture.

The roots which bear to be kept without damage a conſiderable time out of the ground, are to be obtained from their place of growth, and about June put into a light rich earth in large pots.

The beſt compoſt will be this: mix equal parts of freſh mould from a paſture, common ſand, and the earth from under an old wood-pile.

With this fill the pots about two thirds; then place the root, and put in more of the ſame ſoil, till it is covered an inch deep at the top.

Give it a gentle watering and ſet it in a warm ſheltered place. In Auguſt the leaves will appear; it muſt then be removed where there is more ſun, and watered lightly every day.

In September it ſhould be ſet in a ſtove and allowed a temperate heat, and ſtill be moderately watered. This conduct will bring it to flower in all its beauty.

APOCYNUM. See the article DOGSBANE.

APPLE-TREE, *Malus*, a genus of trees too well known in England to need any deſcription here. Linnæus has ranged it among the *pentagynia icoſandria*, and conſiders the Apple-tree, Pear-tree, and Quince-tree, as ſpecies of the ſame genus.

Among all the variety of fruits cultivated in England, none are ſo univerſal as the Apple; for every ſpecies of ſoil will produce great quantities of one or other of the varieties of this fruit.

It would be almoſt endleſs to enumerate all the various kinds of Apples which ripen in the ſummer months, and have their peculiar names by which they are diſtinguiſhed, as the Margaret Apple, the Jenneting, the Codling, the ſummer Permain, &c. Other ſorts are eatable in winter as the Golden Pippin, Nonpareil, winter Permain, and a great number of others. Beſides theſe there are ſeveral others which are preferred for making cyder, the chief of which are the Red-ſtreak, Devonſhire-wilding, the Whitſour, Herefordſhire underleaf, John Apple, everlaſting Hanger, Gennet may be, and ſeveral others.

From the great variety of Apple-trees, we have a vaſt number of of fruits in our gardens owing ſolely to culture. The ſeveral ſorts of Apples are deſigned either for ſtandards, or in dwarfs or eſpaliers; thoſe that are deſigned for ſtandards ſhould be grafted on crab-ſtocks, and thoſe for dwarfs or eſpaliers on the Codling; or ſome other ſort which does not ſhoot freely.

The beſt ſeaſon for planting out theſe trees is, if the ſoil is dry, in October; but in a wet ſoil it is beſt to defer it till February. The diſtance at which they ſhould be planted, is forty feet ſquare, that the ſun and air may have room to come every way at them. And it is a very good method in large orchards, to plough and ſow the ground between them, till they are grown up. Good thriving trees, of about three years grafting, are to be choſen for planting; and they ſhould be taken from a ſoil as nearly of the ſame nature with that they are to be planted into, or rather from one that is ſomething poorer, In preparing theſe trees for planting, all broken or bruiſed roots are to be taken off, as alſo all ſuch as croſs or gall one another, and all ſmall fibres; for they ſeldom ſurvive a removal. Some of the moſt luxuriant branches muſt alſo be taken off at the ſame time, and others ſhortened, but the head ſhould by no means be cut off. The holes for the planting them ſhould be made about two feet deep, and of a breadth proportioned to the extent of the root; the bottoms muſt be made even, and the clods and lumps broken. The tree is then to be ſet in the middle of the hole, and placed as upright as poſſible, and the earth carefully placed about its roots; and finally trod about it with the feet, and if the weather be dry, every tree ſhould have a good watering, which will fix the earth to the roots. A ſtake ſhould alſo be fixed by the ſide of each tree to tie it to, that the wind may not ſhake it and looſen the roots. The foot of each tree ſhould be then ſurrounded with turf newly cut, with the green ſide downwards, which will greatly help to keep the earth moiſt; and if the ſeaſon be very dry, the waterings muſt be more frequent; but it is a very common error to water new-ſet trees too much, and this ſhould be carefully avoided. The year afterwards dig in the earth about the roots, and bury the rotted turf, which was laid about the root when planted, and there needs no farther care, the orchard will then thrive of itſelf. Dwarf ſtandards are of the leaſt value of all Apple-trees, never producing well-taſted fruit; and therefore the worſt way of managing this tree. Eſpaliers are planted to ſurround the quarters of kitchen gardens. Theſe quarters ſhould be made as large as the garden room will permit. The trees ſhould be planted at ſixteen or eighteen feet aſunder, if on crab-ſtocks; but if on paradiſe ſtock, twelve feet will be ſufficient; when theſe are planted in the manner above deſcribed, they ſhould be headed to about four eyes above the graft, and they ſhould never be of of more than two years old from the grafting when planted. The ſummer after they are planted, a number of ſmall ſtakes muſt be provided, of about three feet long, to drive into the ground on each ſide of the trees, four to each tree; and to theſe ſtakes the new ſhoots muſt be faſtened as horizontally as poſſible. If the trees have taken kindly, probably about Michaelmas all the four eyes will have made ſhoots; if ſo, at Michaelmas, which is the right time for pruning, the two upper ſhoots ſhould be cut off to four eyes each, but the undermoſt may be left with ſix or eight; but the branches ſhould never be ſhortened in ſummer unleſs on occaſion of filling up ſome vacancy in the eſpalier, and then this muſt not be done after May. In the ſecond year all the ſhoots muſt be trained horizontally, except the fore-right ones, which muſt be diſplaced as faſt as they are produced: at Michaelmas, the branches in the middle of the tree, or wherever there is a want of wood, muſt be ſhortened; but after this be very careful of any great lopping or ſhortening of branches but leave them at full length, training them all horizontally.

Cuſtard APPLE, one of the ſpecies of the Annona, found in the Weſt-Indies, and the warmer parts of North-America. This tree grows to the height of twenty-five or thirty feet in the Weſt-Indies; and produces a very large fruit of a conical form; and, when ripe, of an orange colour. It is full of a ſoft, ſweet, yellowiſh pulp of the conſiſtence of a cuſtard, and from thence it has its name. It is too tender to live in the open air in England; but may be eaſily raiſed from ſeeds in bark ſtoves; but will not produce fruit in this climate.

Love APPLE, a ſpecies of the *Solanum* or Nightſhade, with an herbaceous ſtalk, cut, winged leaves, and ſingle bunches of flowers. It is a native of North America, and may be propagated by cuttings, which, when planted, muſt be covered with a glaſs, or hand bell, and ſhaded from the ſun till they have taken root and then treated in the ſame manner with other exotics.

Mad APPLE, a ſpecies of the *Solanum* better known by the name of Egg-plant. See the article EGG-PLANT.

Thorn APPLE, *Datura*, a genus of plants, ranged by Linnæus among the *pentandria monogynia*, and of which he enumerates three ſpecies. 1. Datura with a ſpiny, erect, oval fruit. 2. Datura with a ſpiny, nodding, globular fruit. 3. Datura with a ſmooth, nodding fruit, and a ligneous ſtalk.

The firſt and ſecond ſpecies are annual plants. The firſt was originally a native of America, but is now common in almoſt every part of Europe, as it will grow wherever the ſeeds are ſown; and if the plant is permitted to ſcatter them, a plentiful ſupply of young plants will come up. The ſecond ſpecies grows naturally in Aſia and Africa, and will therefore require an artificial heat in this climate. Accordingly the ſeeds of this ſpecies muſt be brought forwards by means of a hot-bed in the ſpring; and in June the plants may be ſet in a warm border of rich earth, where they will flower in July and Auguſt; and, if covered with glaſſes will ripen their ſeed in this country: The third ſort is a ſhrubby plant, and a native of Peru. The ſeeds muſt be ſown on a gentle hot-bed, and the plants afterwards heated in the ſame manner as other exotics.

APRICOT, the name of a well known ſpecies of fruit trees, ranged by Linnæus with the *Prunus*, or plum-tree, and ranged among the *icoſandria monogynia*. But though the generative parts of the flowers agree according to his ſyſtem of botany, yet as there is a very material difference, not only in the plant and foliage, but alſo in the taſte and form of the fruit, we ſhall conſider theſe trees diſtinctly.

The Apricot tree grows in England, to a tolerable ſize, producing roundiſh, accumulated leaves ſerrated at their edges, and placed alternately on free-growing branches, though on the curſons or ſpurs, they grow five or ſix together in a bunch. The flowers, which are roſaceous, appear early in the ſpring before the leaves, and are ſucceeded by a well known, fleſhy, ſucculent fruit. In England there are ſeven ſorts cultivated. 1. The maſculine Apricot, which is ſooneſt ripe, and of a ſmall roundiſh form. 2. The orange Apricot, which is the next that becomes ripe, the flavour of which is very indifferent. 3. The Algiers Apricot, the next that ripens, which is oval-ſhaped, compreſſed, and of a ſtraw-colour; this fruit is not much eſteemed. 4. The Roman Apricot, next in order of ripening, and larger than the Algiers. 5. The Turkey Apricot, which is larger than the others, and of a globular form, it ripens next, and is much better flavoured than any of the above-mentioned. 6. The Breda Apricot, ſuppoſed to be a native of Africa, it is a large, roundiſh fruit, of a deep yellow when ripe, and of an orange colour within ſide, the fleſh is ſoft, full of rich juice, and higher flavoured than any of the whole tribe. 7. The Bruſſels Apricot, it is the laſt in ripening, is red on the ſide next the ſun, and of a greeniſh yellow within ſide when ripe; the fleſh is firm and high flavoured, but often cracks before it is ripe.

All the ſorts of Apricots are propagated by inoculation on plum-ſtocks, and trained in the nurſeries either for planting againſt walls, or for ſtandards. The beſt ſoil for theſe, or any other ſort of fruit, is freſh untried earth, from a paſture taken about ten inches deep with the turf, which ſhould be laid to rot and mellow, at leaſt twelve months before it is uſed. When the former ſoil of the border is taken away, this freſh earth ſhould ſupply its place, and if the borders are filled with it two months before the trees are planted, the ground will be better ſettled, and not ſo liable to ſink after the trees are planted. The ground ſhould be raiſed four or five inches above the level to allow for ſettling. The borders being thus prepared, make choice of ſuch trees as are of one year's growth from the budding, and if the ſoil is dry, the beſt ſeaſon for planting them is in autumn when the leaves begin to fall. They will then have time to form freſh roots before winter, be better enabled to withſtand the ſeverity of the weather, and prepared to ſhoot more vigorouſly in the ſpring.

Do not cut off any of the head at the time of planting, unleſs there be any ſtrong fore-right ſhoots which will not bend to the wall, and muſt therefore be taken away. If the ſoil is very moiſt, it is better to plant in the ſpring, juſt as the ſap begins to be in motion, the trees being ready prepared for planting, by cutting the extremities of the roots ſmooth, and all ſmall decayed fibres off; mark out the diſtances they are to be planted at, which in a good ſtrong ſoil, ſhould not be leſs than ſixteen or eighteen feet; make a hole where each tree is to ſtand, and place the ſtem about four inches from the wall, bending their tops towards it.

After having fixed the tree in the earth, nail the branches to the wall, and pour a pail of water on the root, in order to ſettle the earth more compactly about it: then cover the ſurface of the earth round the roots with dung, to keep out the froſt. In this ſtate let them remain till February, when, if the weather is fine, the branches ſhould be unnailed, and with a ſharp knife cut down to about four or five eyes above the place of inoculation, ſloping the place of inciſion towards the wall. When the weather becomes hot and dry, it will be neceſſary to water them, obſerving to keep ſome mulch round the roots, which will prevent their drying too faſt.

As new branches are produced, obſerve to nail them to the wall horizontally, and diſplace ſuch ſhoots as grow in a fore-right direction: this muſt be repeated as often as neceſſary, but by no means top the branches in ſummer.

In autumn, when the leaves are dropping off, it will be neceſſary to ſhorten the branches in proportion to their ſtrength. A vigorous branch may be left eight or nine inches long, but a weak one not above five or ſix. By this means no part of the wall will be left uncovered, with bearing wood, which muſt be the caſe, if the branches are left at their full length at firſt, which is practiſed by ſome gardeners; but the error muſt be expoſed, when it is ſeen that few more buds than two or three ſhoot from the branches, and theſe are generally produced from the extreme part of the laſt year's wood, ſo that all the lower part of the ſhoots become naked, and this is the reaſon we ſee ſo many trees, which have their bearing wood ſituated only at the extreme part of them. The ſecond ſummer obſerve as in the firſt, to diſplace all fore-right ſhoots, nailing the others cloſe to the wall horizontally, and never ſhorten any of the ſhoots in ſummer, unleſs to furniſh branches to fill vacant places on the wall. At Michaelmas ſhorten the ſhoots as before directed; the following years management is much the ſame as the preceding: obſerving that Apricots produce their fruit not only on free growing branches, but alſo on curſons, or ſpurs, which are produced from two years wood; theſe ſpurs, therefore, ſhould not be diſplaced.

Apricot trees planted againſt a wall, of a weſt or eaſt aſpect, is beſt, as a ſouth aſpect, is rather too hot for them.

The weſt aſpect is preferable, for it generally happens that at the time of their being in bloom, the blighting eaſterly winds prevail, which frequently cut their bloſſoms off, and greatly damage the trees.

The Bruſſels and Breda Apricots are moſt commonly planted for ſtandards, and produce fruit of a much richer flavour than thoſe planted againſt walls; the misfortune is, that by blowing ſo early, the flowers are very apt to be deſtroyed by the inclemency of the weather: therefore, inſtead of training them with ſtems, ſix or ſeven feet high, it would be better to have them about half that height: or they may be placed as dwarfs in an eſpalier, where, if properly managed, they will produce good fruit, and the trees in eſpalier may be more conveniently covered in the ſpring, when the ſeaſon proves bad.

For a further account of the management of theſe trees, ſee the article PRUNING and INOCULATION.

APRIL, the fourth month of the year.

In the flower gardens and parterre, you may, about the beginning of this month, ſow, in the natural ground, the moſt hardy exotic ſeeds, and ſuch flower-ſeeds as you have omitted to ſow in the preceding month. The part of the garden, where flowering ſhrubs are planted with roots and flowers among them, ſhould now be dreſſed, and the ground ſhould have a good cleaning. Clear away weeds, take off all rubbiſh, broken and ſtraggling branches, and break up the whole ſurface of the ground, drawing up a little mould about the heads of the plants, and round the ſtems of the ſhrubs.

Now is the time to make freſh hot-beds to forward ſuch young ſeedlings of exotic plants, as are come up, and fit to tranſplant from the firſt hot-bed. Roll your graſs and gravel-walks after rain, rake over and renew your works in ſand, &c. and let your graſs be often mowed. If evergreens are wanted, let them be brought in before the end of the month, upon the evening of a cloudy day, and immediately planted. The annual plants in their hot-beds ſhould now by degrees be inured to the weather. The hardieſt flowers, which will now open in the common borders, and be in flower, ſhould all be cleared and put in order; and the latter end of this month the borders ſhould have ſuch a thorough cleaning, that not a weed ſhould be left. The beds of choice flowers muſt alſo be kept perfectly clean.

In the ſeminary dig the ground well, and ſcatter, or plant the ſeveral exotic ſeeds, according to their kinds and ſize, and get to work upon removing exotic trees: for which purpoſe, chuſe a time when there is a proſpect of rain, damp air, and a ſoutherly wind, and begin with the hardier kinds. If eaſterly winds come on unexpectedly, let a reed hedge be placed to defend them; and if the expectation of rain be fruitleſs, let them be watered every day. The beginning of this month you may ſafely tranſplant moſt ſorts of evergreens, and graft Hollies; and about the middle of the month you may inarch Firs, Pines, Junipers, and other trees.

Look over the buds that are now ſhooting, and where you obſerve their tops infeſted with inſects, and their leaves curled, you ſhould pull them off before the injury ſpreads too far. Look over the ſeed-beds of the laſt year: the firſt ſhoots of many of the ſhrubs and trees will appear. Cheriſh theſe by drawing a little mould about them, and clearing away weeds; give gentle waterings: and where they are of the tenderer kinds, if the nights prove ſevere, allow ſome covering; the beſt is a frame of high hoops, and a covering of canvas, which muſt be taken off in the morning. If the beds open to the eaſt, a reed-hedge muſt be placed for their defence. Keep the ground clean between the rows of trees in the nurſery, and if the ſeaſon ſhould prove dry, you muſt diligently water your ſeed-beds of evergreens, foreſt-trees, and ſhrubs; as alſo the young plantation, which were drawn out of the ſeed-bed, and the ſtocks for fruit-trees, which have been lately planted. Finiſh the ſowing of biennial and perennial plants. Look over the beds of ſhrubs tranſplanted from the ſeed-ground, and if ſhowers do not fall, water the beds once in three or four days, and weed the autumnal beds of trees and ſhrubs.

In the fruit garden, the trees being in their bloom, little is to be done in this month; but you are now to rub off ſuch young ſhoots of new planted trees againſt walls, as puſh directly forward, leaving none but thoſe that ſhoot ſide-ways, to form the beauty of the tree. What has been directed to the other ſhrubs, may be continued to the fruit-trees of ſeveral kinds. The plantation of fruit-trees ſhould now be finiſhed; if any article be unfiniſhed in the pruning, let it now be compleated. Inſects begin now to hatch upon fruit-trees, and too much care cannot be taken to deſtroy them. Look over the fruit-trees inoculated laſt ſeaſon, cut off the upper part of the ſtock, and let the ground be ſtirred about the roots. All new planted trees are to be encouraged with water, and ſhould either have a ſemicircular paving of ſmall ſtones, or elſe a ſmall heap of weeds or graſs, laid to keep them cool and moiſt. Keep your garden clean, and digging borders half-ſpade deep, and ſtirring the earth about old wall-trees, is a very good culture, and the moſt effectual method to deſtroy the weeds. Your fruits in the forcing-frames, muſt ſometimes have freſh air, in proportion to the heat of the weather, and their branches ſhould frequently be ſprinkled over with water, and their roots ſhould now and then have ſome watering.

In the kitchen-garden Cauliflower plants remaining in the winter beds muſt now be planted out. Sow a ſmall crop of Carrots, and another of Onions, and ſome of the kitchen garden plants of ſlighter ſervice, as Burnet, Chervil, Bugloſs, and Borage; ſow alſo Marygold, Spinach and French Sorrel, plant Winter Savory, and other of the hardier kinds that grow from ſlips, allowing them a rich piece of the ground under ſhade and ſhelter, plant alſo Sage and Roſemary, Hyſſop, and moſt of the aromatic plants; as alſo Mint, Baum, and Penny-Royal. Plant out the Lettices ſown in autumn; plant Aſparagus beds for the roots are now juſt ſhooting, and they never take ſo kindly as when planted at that period. About the middle of this month you ſhould ſow ſome Purſlain, and the larger peas ſhould now alſo be ſown for a full crop. Towards the end of this month ſow Hyſſop and Sweet Marjoram, Thyme and Summer Savory. Raddiſhes ſhould alſo be ſown. Peaſe and Beans ſown and planted. Once in ſix days let a ſmall piece be dug for ſalletting, and plant ſticks for thoſe rows of Peaſe which require it. Prepare ridges for cucumbers and melons, that are to be raiſed under bell glaſſes. Put a crop of French-beans into the natural ground. Defend the trees and plants from ſnails and ſlugs, which in this month make great deſtruction in the kitchen garden. Keep all your young crops clean from weeds; for if at this ſeaſon that work is neglected, it will require much more labour afterwards, and the crops will be greatly injured by the weeds.

Particular directions for the culture of each plant, and the various management of plants, fruits, roots, &c. will be found under their reſpective names.

ARBOURS, are generally made of lattice-work, either in wood or iron, and covered with elms, limes, horn-beams, or with creepers, honey-ſuckles, jaſmines, or paſſion-flowers, either of which, if well managed, will anſwer the purpoſe. Arbours were formerly in much greater eſteem than they are at preſent, few gardens having been without covered arbours and ſhady ſeats; but of late they have been much neglected, and covered ſeats, or alcoves, are every where at this time preferred to them.

ARBUTUS, the Strawberry tree, a genus of plants ranged by Linnæus among the *decandria monogynia*, and of which there are four ſpecies; 1. Arbutus, with an erect ſtalk, ſmooth, ſawed leaves, and many ſeeded berries, called the common Strawberry tree; 2. Arbutus, with trailing ſtalks, oval leaves, ſomewhat indented, flowers growing looſely, and many ſeeded berries; 3. Arbutus, with trailing ſtalks, and rough ſawed leaves; 4. Arbutus, with trailing ſtalks and entire leaves, or berberries. See the article BERBERRY TREE.

The common Strawberry tree is a ſhrub that retains its verdure all the year, and we have no other evergreen tree which endures the open air that ſo much conveys the pleaſing idea of ſummer to us, in the midſt of winter.

It is naturally a handſome ſpreading ſhrub, but may at the pleaſure of the gardener, be raiſed into a middling tree; againſt this, reaſon, however, abſolutely declares; it being one of thoſe plants which bear a near inſpection, and whoſe beauties are loſt at a greater diſtance.

Thoſe which have larger and more ſpecious leaves and flowers, ſhould be trained up to height; this ſhould be kept to ſuch a ſtature, that every eye may ſee for what it is reſpected.

The root ſpreads far, and ſends its fibres deep beyond that ſuperficial mould on which froſt operates, and this is one reaſon of its perfecting its fruit at ſo dead a ſeaſon, and retaining its leaves through winter. The natural thickneſs of its juices helps alſo to that purpoſe; and to their ſluggiſh courſe, the conſequence of that thick ſubſtance, is owing to the vaſt length of time required to ripen the fruit.

The bark of the trunk is a deep brown, that of the branches paler, and of the young twigs often purpliſh. The leaves are oblong, and of a form ſomewhat approaching to oval.

Their colour is a deep, but not unpleaſant green; and their edges are in a moſt regular and elegant manner ſerrated; art never attained a comparable exactneſs or proportion.

The ſubſtance of them is firm and hard, and as they decay, frequently they acquire a ſcarlet colour, which is very pleaſing.

The flowers are more conſiderable for their form, than ſize or colour; they are ſmall, and of a greeniſh hue, naturally diverſified a little with white, and ſometimes tinged with purple. They are hollow, and as it were blown up, and indented at their rim. The fruit which follows theſe ſo ſlowly, is when ripe, of the bigneſs and form of the common Strawberry, but its ſeeds are within. Its taſte to Engliſh palates, is auſtere and raw; but in Ireland, where the ſhrub is native, it attains a better maturity, and is ſometimes eaten.

Culture of the ARBUTUS.

No great art is required to bring into the garden, or maintain in it a ſhrub which is a native of our own kingdom, and bears the bleak cold of our northern mountains unhurt, and in its full vigour.

The common way of propagating it is by layers; but it is far better to raiſe it by ſeeds. Theſe ſhould be taken carefully from the fruit when fully ripe, and laid to dry upon a papered ſhelf.

Let the gardener ſee that he chuſes the ripeſt fruits for his ſeed, and let him take it from ſuch only as grow upon a flouriſhing tree. When he has hardened it upon the ſhelf, let him dry and ſift ſome common houſe ſand, for preſerving it during the winter. Let a ſmall box be prepared, and ſift over the bottom of it two inches more of the ſame ſand ſet by the box, and let it ſtand by during the winter.

In the beginning of March ſift away the ſand, and the ſeeds will be in perfect good condition for growth.

Fill a couple of garden-pots with fine freſh mould, from under the turf in a good paſture, and upon the ſurface of this ſcatter the ſeeds, covering the mould in each pot with them, at about an inch diſtance.

Sift over them a quarter of an inch of freſh mould, and then give a very gentle ſprinkling of water that has ſtood in the ſtove. This done, ſet the pots up to the rim in a bark-bed, of a moderate heat, and ſhade them.

The plants will appear in about eighteen days; but the exact time is not certain. From their firſt appearance they muſt be at times gently watered, and hardened by degrees to the air.

Let the gardener now conſider how many he intends to raiſe, and ſelecting the ſtrongeſt and the beſt looking among them for this purpoſe, let him pull up the reſt in each pot.

This will give them more liberty; they will thrive viſibly upon it, and the watering muſt be continued.

About the end of May they will be fit for tranſplanting into ſeparate pots.

Let it be filled with earth from a dry paſture, and a little from under a wood-pile.

Let one plant be carefully ſet in each pot; and when the earth has been fixed about their roots, and drawn up a little about their ſlender ſtems, they muſt have another gentle watering, and be again ſet into the bark-bed. This will greatly promote their rooting.

They muſt be ſhaded till well fixed in the new pots, and every night gently watered; when they appear perfectly well recovered from the check of their removal, they muſt be hardened again, and uſed to the free air, by opening the glaſſes; and afterwards ſet out among the green-houſe plants.

At autumn they muſt be taken into ſhelter, with the reſt, and remain houſed through the winter. This is the only time of their danger. While young, they are very ſubject to be damaged by froſt; but afterwards they bear it perfectly well. Some of the extreme branches will perhaps be hurt afterwards, but very rarely the whole ſhrub.

When the young plants have been thus brought through their firſt winter, they will with leſs care ſtand all the reſt.

In the middle of April let the gardener fix upon the ſpots where they are to ſtand; and in the evening of a warm ſhowery day, let him open the holes for them.

He muſt throw down at the edge of each hole, ſome freſh earth from a paſture; and then looſening the whole ball of earth from the bottom and ſides of the pot, let him take it out unbroken with the plant in it, and ſetting it upright in the hole, fill it up with the earth carefully, and give a moderate watering.

The Arbutus roots but ſlowly; but this way it will not feel the check, or need ſo much as ſhading.

The two ſucceeding winters, let theſe young trees be defended, from the ſeverity of the froſt; and from that time they may take their chance without danger.

ARCTOTIS, the name of a genus of plants which has no Engliſh name. Linnæus has ranged it among the *ſyngeneſia polygamia*, and of which there are four ſpecies. 1. Arctotis with twenty radiating floſcules, cut into three ſegments. 2. Arctotis with twelve radiating and almoſt intire floſcules. 3. Arctotis with winged ſerrated leaves, and oblong indented ſegments. 4. Arctotis with ſpear-ſhaped, narrow, indented, and intire leaves.

All theſe plants are natives of Ethiopia. The firſt and ſecond are annual plants, and are propagated by ſeeds, which ſhould be ſown in March upon a moderate hot-bed. When the plants will bear it, they ſhould be tranſplanted each into a ſingle pot; and as ſoon as they are well rooted, they muſt by degrees be inured to the open air, in which they ſhould be placed as ſoon as the weather will permit. They muſt be watered in dry weather, and tranſplanted into larger pots, before their roots fill the pots they are in.

The ſeeds may alſo be ſown about the middle of April, upon a warm border of light earth, where the plants are deſigned to remain, they will grow ſtronger than thoſe raiſed upon a hot-bed.

The third and fourth ſpecies may be raiſed from ſeeds, but the beſt method is by cuttings. Theſe take root very freely and ſoon grow into handſome plants.

The gardener is to obſerve, that he does not let them make any ſhoots too low, for they will be troubleſome to ſupport; but for all the reſt, he ſhould ſuffer them to ſpread in their natural wildneſs; and it will be beſt to raiſe plants in this manner very frequently, to ſupply the place of the old ones, which are more ſubject to decay, and at beſt have leſs beauty; the leaves being fewer, and thoſe as well as every other plant leſs lively.

About the latter end of May, let a border of rich mould be well dug and broke; and in this let the gardener plant as many handſome cuttings as he is deſirous of raiſing.

Let them be taken from thriving, healthy plants, and ſet at eight inches diſtance.

When they are in the ground let them have a gentle watering, and let this be repeated every evening.

In the middle of the day let them be ſhaded by a mat, or a ſloping reed-hedge; and let the ground be kept clear from weeds between them. By mid-ſummer they will be well rooted.

Let them be carefully taken up, and planted in ſeparate pots of common garden mould.

Let theſe be placed in a ſhady part of the nurſery, till they are well rooted in the pots, after which, let them be brought into the open part of the garden, where the hardy exotics are kept, and in the end of October, remove them into the green-houſe; here they are to be treated as the other plants, allowing them plenty of water at convenient times; and as much air as can ſafely be admitted into the place. They will thus flower with great profuſion all the year.

ARCUATION, the term uſed for the raiſing of trees by layers. The firſt thing, in order to do this with ſucceſs, is to chuſe large and ſtrong mother plants, which are uſually called among the gardeners, ſtools. It is no matter whether the trees be crooked, or otherwiſe deformed; and the larger they are the better: they are to be cut down cloſe to the ground. Theſe are to be planted in a border ſix feet wide, and in a ſtrait line ſix feet aſunder: the border muſt be well trenched, or dug clear from all roots, clods, ſtones, or other obſtructions. Theſe trunks, or ſtools, being planted in this trench, will each throw out twenty, thirty, or forty plants, which may be begun to be laid about the Michaelmas following; and if the ſtools have been properly managed, they will alſo by this time have thrown out five, ſix or more main branches from the root; and on every one of theſe, as many ſide or collateral branches. Theſe main branches muſt be bent down to the ground; and ſome gardeners cut them half through, that they may bend the more eaſily. When the main branches are thus laid all round the ſtool, then they muſt be pegged faſt down; and after this the ſide ones and ſmall ones may be ſerved in the ſame manner; the main branches or ſhoots muſt be covered with earth all over, except the top; and the ſmall ſide branches muſt be covered two or three inches thick upon the joints; and many give all the branches a twiſt, in order to make them take root the ſooner. Some ſtraw dung ſhould now be laid over them, to keep them moiſt; and they muſt have a large baſon of earth made round them, in order to hold the water during the enſuing ſummer. They muſt, if the weather is dry, be watered two or three times every week. About the middle of September following, they may be opened, to ſee if they have taken root; if not they muſt be let alone to the next ſpring, and by that time they will be fit to tranſplant into the nurſery.

Elms, Limes, Poplars, Willows, Platanus's, and many other trees, ſucceed very well by this operation.

ARISTA, the name of botaniſts for the beard or awn of corn, or that ſharp pointed needle, that ſtands out from the huſk or hoſe of the grain.

ARTICHOKE, *Cynara*, a well known plant, of which there are two ſorts cultivated in the kitchen gardens; one known by the name of the globe Artichoke, and the other by that of the French Artichoke. The former produces large round heads, with broad brown ſcales turning inward: the eatable part at the bottom is very thick and better flavoured than that of the other ſort, which produces taller ſtalks, with leſs heads of a conical ſhape; the ſcales are narrower, and have leſs fleſh at their bottom; on which account the French ſort is pretty much excluded from the Engliſh gardens, the other being much preferable.

Both ſorts are propagated from ſlips or ſuckers taken from the old roots in February, or the beginning of March.

In taking off theſe ſuckers, be careful to open the earth deep enough about each ſtock or root that you may readily get to ſlip the ſhoots off clean from the place whence they ariſe; minding to leave two good ſhoots, but never more than three, upon each root or ſtock cloſing the earth in again about the root, and alſo about the young plants, preſſing it cloſe about them with your hand.

The ſhoots thus ſlipped off, are proper for making a plantation, where wanted, without injuring the old bed.

Theſe ſhoots ſhould be planted in an open ſituation, and in good round; over which a conſiderable quantity of rotten dung ſhould be ſpread in the autumn and dug in.

They muſt be planted in rows a yard and a half aſunder, and not leſs than two feet, nor more than a yard diſtant from one another in the row. Give them ſome water immediately after they are planted, to ſettle the earth properly about the plants.

The above plantation, if kept clear from weeds, and now and then watered in dry weather, in the beginning of the ſummer, will not fail to yield good Artichokes the following autumn.

A plantation of Artichokes will continue to produce good heads five or ſix years, and ſometimes longer; but it muſt be obſerved, that ſuch perſons as deſire to have a ſucceſſion of this fruit for four or five months in the ſummer, ſhould make a new plantation every ſpring, for the old ſtocks which have been planted a year or two, produce heads in June or July, and thoſe planted now produce heads in Auguſt, September, and October.

In the month of July the Artichokes on the old beds will come into uſe; and the plants muſt be managed in the following manner.

But it will be proper previouſly to obſerve, that if you deſire to have large Artichokes, you muſt, in order to encourage the main head, cut off all the ſuckers or ſmall ſhoots, which are produced from the ſides of the ſtems; and theſe in ſome families are dreſſed for the table.

It is alſo neceſſary to obſerve, that as ſoon as the Artichoke, that is, the principal head, is cut, to let the ſtem be immediately broken down cloſe to the ground. This practice is, by many people, utterly diſregarded, but it ſhould not: for the ſtem, if permitted to remain, will greatly impoveriſh the roots, and injure them much more than is generally imagined.

In the month of Auguſt let the Artichokes, which were planted laſt March be examined. Many of theſe plants will now be in fruit; and beſides the principal, or top fruit, many ſmall heads or ſuckers will be ſhot up from the ſides of the ſtems; but in order to encourage the principal head to grow to a large ſize, all theſe ſide ſhoots ſhould be diſplaced, as we already obſerved, with regard to the Artichokes on the old beds.

This is conſtantly practiſed by perſons, who prefer one large head to three or four ſmall ones; but when you practiſe this, the ſuckers ſhould always be taken off, before they exceed the ſize of an egg.

The gardeners about London gather theſe as above; they tye them in bunches, and carry them to market, where they have a ready call for them.

About the middle, or towards the latter end of November, it will be time to cut down the leaves of the Artichokes, and earth up the plants to protect them from the ſevere froſts.

The leaves muſt be cut down cloſe to the ground.

This being done, you may practiſe either of the following methods in earthing, or as it is called by gardeners, in landing up the plants. The firſt is this: let trenches about twenty inches wide be marked out between all the rows, and let the ſaid trenches be dug out a good ſpade deep, and lay the earth as you dig it out, over the rows of plants, obſerving to cover the crowns of them, at leaſt ſix or eight inches thick.

But in landing up the plants, ſome gardeners, inſtead of digging out trenches as above, practiſe the following method.

They ſet the line exactly along the middle of each of the ſpaces, between the rows of plants, and with their ſpade cut a mark according to the line: by this they form, as it were, beds four feet and a half, or five feet broad, with one row of plants, ſtanding along the middle of every ſuch bed; the ground is then dug regularly, bed by bed, digging cloſe about, and between all the plants, at the ſame time working or rearing the earth gradually from the above lines, or marks on each ſide the row of plants, into a ridge; the ridge is made ſloping on each ſide.

Theſe are the only methods to be taken to protect Artichokes from froſt; ſome indeed never land them up, but inſtead of that, lay ſome long dung over the plants, but this is not ſo good for protecting the plants, for it will not keep out the froſt ſo well as a good ridge of earth.

But notwithſtanding this precaution, if the winter ſhould prove uncommonly ſevere, it will alſo be proper to lay over every ridge a covering of ſtraw, or other dry long litter; and this, together with the ridge of earth, will effectually ſecure the Artichokes.

In dreſſing the Artichokes there is one thing proper to be obſerved, and that is, when any of the ſtrong plants now ſhew fruit, and you deſire to ſave that fruit, they ſhould not be cut down: but let the leaves be tyed up cloſe with a hay-band, and then lay the earth over the roots as above, and up cloſe about the outſides of the leaves, which will preſerve the plant in a growing ſtate, and will bring the fruit to perfection.

In the beginning of March, where the ground was trenched up, and laid over theſe plants, to protect them from froſt, it muſt now be levelled, and dug about the plants; as you proceed, obſerve to let two or three of the ſtrongeſt ſhoots remain.

The Artichoke delights in a deep, rich, and moiſt ſoil, well prepared with rotten dung, and mixed to the depth of three feet at leaſt: for the deeper the mould is, the leſs watering they will require in ſummer, and produce larger and better flavoured heads.

The kitchen gardeners near London, who endeavour to make the moſt of every inch of their high-rated land, generally plant their rows of Artichokes nine or ten feet aſunder, and beſides ſowing between them Radiſhes, or Spinach, they plant two rows of Cauliflowers, at the diſtance of two feet and a half aſunder, in rows, and four feet from row to row, ſo that full five feet are allowed for the Artichokes. In May, when the crop of Radiſhes, or Spinach, is off, they ſow along the middle of the ſpace, between the two rows of Cauliflowers, a line of Cucumbers for pickling, at the diſtance of three feet; and between the Cauliflowers and Artichokes, they plant for winter uſe a row of Cabbages, or Savoys, which have room enough to grow, after the Cauliflowers and Artichokes are taken off: thus the ground is fully cropped, during the whole ſeaſon. A moiſt, rich ſoil, is always beſt for Artichokes: but if it be too moiſt, the roots will not live through the winter: ſuch ground ſhould, therefore, be allotted for freſh plantations, made every ſpring, to ſupply the table in autumn, after the old ſtocks have done bearing; but for early fruit, the plants ſhould be in a drier ſituation; they ſhould be alſo in an open place, that is free from the drip of trees, for they would draw the plants up weak, and thereby render the fruit ſmall and trifling. If the Artichoke ſtocks ſhoot forth but weakly in the ſpring, as they will do if they have been hurt by froſt, or too much wet, it is beſt to uncover them with a ſpade, looſening, and beaking the mould around them, or rather to dig the whloe ground, if it be not planted with any thing elſe, and then to earth and raiſe a ſmall hill about each ſtock, which will greatly help them: in about three weeks or a month after, the ſlips will be fit to take off.

Jeruſalem ARTICHOKE, a ſpecies of the Helianthus, or Sun-flower, propagated in many gardens for the ſake of the roots, which are eſteemed by many people.

They are propagated by planting the ſmaller roots, or the larger ones cut into pieces, obſerving to preſerve a bud to each ſeparate piece, either in the ſpring or autumn, allowing them a good diſtance, for their roots will greatly multiply; the autumn following, when their ſtems decay, their roots may be taken up for uſe.

Theſe ſhould be planted in ſome remote corner of the garden, for they are very unſightly while growing, and their roots over-run whatever grows near them, nor can they be eaſily deſtroyed, when once fixed in a garden.

ARUM, Wake-robin, or Cuckow-pint, a genus of plants, ranged by Linnæus among the *gynandria polyandria*, and of which there are eighteen ſpecies, one of which is the common Dragon. See the article DRAGON.

One of theſe ſpecies, called Trifoliate Arum, or Arum with three leaves growing at a joint, is a very curious plant, and therefore merits a more particular account in this work, eſpecially as it is not ſo frequently found in our gardens, as it deſerves.

We are accuſtomed to a plant of this kind under our hedges, which if leſs common, would not be ſeen without wonder: for nature ſcarce affords a more ſingular genus. But with all the peculiarity of the common kind, this, which is only to be found where curious induſtry has placed it, has great beauty.

The Trifoliate Arum is a native of America, and was brought into England, with ſome of the firſt plants imported from that quarter of the world.

The root is roundiſh, ſoft, of the bigneſs of a filberd, and covered with a pale brown ſkin; from its top ſpread many fibres.

The whole plant conſiſts of two leaves, rarely more, and its flower, which all riſe together from the head of the root, enveloped with a thick film; and before that opens to let the foot-ſtalk of the leaves ſpread, the whole forms a round ſtem. The membrane is whitiſh towards the ground, greener upwards, and ſpotted with a wild irregularity, with red.

The leaves have long foot-ſtalks, and theſe, with their hollow filmy bottoms, are alſo of a pale green, ſpotted with crimſon.

Each leaf is compoſed of three parts oblong, broad, waved, and pointed. The colour is a greyiſh green; but the veins, which are extremely conſpicuous, are red.

Between the foot-ſtalks of the leaves riſes that of the flower, ſpotted as the reſt, but leſs ſo.

The ſcabbard is extremely beautiful in this plant; it is very large, open, and irregular at the tops and edges. Its ground colour on the outſide is a fine ſtrong green, and on the inſide purple, ſtriped throughout with broad upright bands of white; in this, as ſeated in a canopy, appears the club or ſpadix: it is oblong, thick, rounded, obtuſe at the end, and varies in colour from pale green to white, and to the moſt bloody purple.

This is all that is ſeen till the ſcabbard is torn open, then appear the parts of fructification. Two rows of glands are ſeen on the midſt of this part of the club, they are thick at the baſe, and terminate in hairy extremities; and between theſe are ſituated a number of buttons, but without filaments, adhering to the body of the ſpadix; they are large and ſquare.

Round the baſe of the ſpadix, ſtand numerous oval bodies, tipped with hairy filaments: the firſt named bodies were Nectaria, but theſe are the rudiments of fruit; theſe feathered tops are of the ſtigmata, and they have no ſtyle. Each is followed by a roundiſh berry, in which are many ſeeds.

Culture of the Trifoliate ARUM.

We have already obſerved that it is a native of America, and ſhall now add that it is found in various degrees of heat and cold, but always in the ſame ſoil: this is a mellow earth, enriched by fallen leaves and rotted boughs of trees, whoſe ſhade in ſome degree covers it. Thus we are to raiſe it, and it will attain all its natural perfection.

A compoſt ſhould therefore be made in the following manner: mix equal parts of light paſture mould, pond-mud, and earth of an old wood pile; throw them in a heap, and let them lie ſome months.

Let ſeeds be ſaved in America and ſent over; and in the latter end of February, let a couple of pots be filled with the compoſt: let the ſeeds be ſcattered over the ſurface, and covered with a quarter of an inch of the ſame mould, ſifted over them. Let theſe be plunged up to the rim in a bark-bed, and the earth kept moiſt.

When the young plants appear, let the weakeſt, where they ſtand too cloſe, be taken up; and when the others are of a ſize to remove, let each be planted in a ſmall pot of the ſame compoſt.

Let them be ſhaded till they have taken root, and then inured to the air by degrees. In June let them be taken intirely out, and a fortnight after planted in a warm border, where there is ſome ſhade, the holes being filled with the compoſt.

Here they will ſtand our winters; and after the firſt ſtock is thus raiſed, they may be encreaſed by parting the roots, which ſhould be taken up for that purpoſe in autumn.

ASARABACCA, *Aſarum*, the name of a genus of plants, ranged by Linnæus under the *dodecandria monogynia*, and of which there are four ſpecies; 1. Aſarum, with kidney-ſhaped leaves, which have two blunt points, or the common Aſarabacca; 2. Aſarum, with kidney-ſhaped leaves, ending in a point; 3. Aſarum, with blunt, heart-ſhaped, ſmooth leaves, with foot-ſtalks; 4. Aſarum, with ſeſſile imbrecated leaves, and flowers cut into four parts, or the Hypociſt.

Theſe are perennial plants; the firſt grows naturally in ſome parts of England, and other countries of Europe: it is propagated by parting of the roots in autumn, and thrives in a moiſt, ſhady place. The ſecond ſpecies is a native of Canada, and is propagated like the firſt. The third ſort grows naturally in Virginia, Maryland, and Carolina: it ſhould be planted in a ſhady border. The fourth is a native of Spain and Portugal, and is tenderer than any of the reſt; they are propagated like the firſt and ſecond ſorts, by parting of the roots.

ASCLEPIAS, Swallow-wort, a genus of plants, ranged by Linnæus among the *pentandria monogynia*, and of which there are eighteen ſpecies. But the deſcription and culture of the three following which are the moſt beautiful plants of this genus, will enable the gardener to cultivate the reſt, whenever they ſhall be deſired.

Variegated Flowered ASCLEPIAS.

This is a plant of extreme elegance, known in very early times, and afterwards left unobſerved for many ages, a native of the Indies, and of our American poſſeſſions: its beauty is ſufficient to enſure it in this age of curioſity, from farther neglect.

Linnæus calls it Aſclepias, with oval, rugged, naked leaves, a ſimple ſtalk, and low umbells, with woolly foot-ſtalks. The name is long, but it conveys a deſcription of the plant.

The root is thick, and of an irregular ſhape; the ſtalk is firm, upright, purpliſh at the baſe, and of a pale green upwards, and is a little downy.

The leaves ſtand in pairs, and they are of a ſimple, pleaſing form, oblong, conſiderably broad, ſupported by ſhort, reddiſh foot-ſtalks, and in themſelves of a deep coarſe green, with a red middle rib.

They are not downy, as the ſtalk is, but rough upon the ſurface, from their own natural inequalities.

The flowers are not large of themſelves, but they cloathe the top in a vaſt tuft, conſpicuous at a diſtance by its bright colour, and much more near from its elegant variegations.

The outer-part of each flower is ſometimes white, but when the plant is in its higheſt perfection, it is lightly ſtained with a fleſh-colour; the inner part is of a glowing crimſon, ſomewhat tinged with a caſt of purple.

Each flower ſtands in a little cup, formed of a ſingle piece, broke into five pointed ſegments at the edge, which remains with the fruit.

The body of the flower is formed of a ſingle petal, cut into five deep ſegments, which are of an oval form, pointed at the end, and ſomewhat bent.

Within theſe ſtand in each flower five nectaria, ſurrounding the parts of impregnation; each of theſe is broad, ſhort, and of an irregular figure, and from its baſe riſe a kind of horn, whoſe points turn towards the filaments: within this, round about the filaments, is placed another ſingular ſubſtance, of a truncated form, ſurrounded by five ſcales, in the manner of a caſe at the ſides, and opening by as many cracks.

Within theſe ſtand five filaments, ſo ſhort, they would not be diſtinguiſhable, but for the buttons they ſupport; and in the midſt of them riſes a double germen, or rudiment of a fruit, with two ſtyles, ſo ſhort, that like the filaments, they would not be diſtinguiſhable, but for the tops or ſtigmata they ſupport.

The fruit ſucceeding theſe, is a double pod with numerous ſeeds in each, crowned with down, and a looſe receptacle.

Culture of this ASCLEPIAS.

The plant is a native of North America, and may therefore may be raiſed with us eaſily, and kept alive with little trouble; but though the cold of its natural climate makes it bear ours well, we have not the heat: our ſummers do not equal theirs.

Therefore to make the plant flower in all its glory, we muſt give it the aſſiſtance of the ſtove.

The ſoil in which it is naturally found, is a looſe, light, rich mould, ſuch as is common on the edges of foreſts, where broken boughs and decayed leaves have rotted upon it, and covered it from year to year, rendering it at once rich and mellow.

This muſt be imitated by the following compoſt: mix a barrow of good earth from under the turf in a meadow, half a barrow of pond mud, and a barrow of rich earth from under an old wood-pile; let theſe be well ſtirred together, and thrown in an heap till wanted.

Let ſome of the ſeeds be procured from North America, and directions given that they may be gathered when full ripe, and ſent over in the pods.

In the beginning of March, ſow theſe upon a moderate hot-bed, and when the plants appear, forward them by frequent gentle waterings.

When you can ſee which are the ſtrongeſt plants, pull up the others, reſerving only ſo many as you chuſe to raiſe.

Let them ſtand in this bed till they crowd one another, then take them up carefully with a little of their own earth, and plant them ſeverally in ſmall pots, filled with the compoſt.

Give them a gentle watering, ſet them in a bark-bed, and ſhade them till they are well rooted.

Then by degrees harden them to the air, and bring them out in July among the green-houſe plants.

For this year they are only to be ſet in the green-houſe in winter, and taken out with the reſt in ſpring; but the ſucceeding autumn let one or more of the fineſt of them be taken into the ſtove, and they will then flower with the full beauty they have in their natural climate.

Giant Asclepias.

This is a plant long known to the botanical ſtudents, and as long celebrated for its ſingularity and beauty.

Linnæus, to diſtinguiſh the ſpecies, names it Aſclepias, with oblong oval leaves, embracing the ſtalk. The common name by which our gardeners know it, is Beidal-oſſar.

The root ſpreads under the ſurface, and has innumerable fibres; the ſtalk is firm, tough, upright, and ſeven feet high, its ſubſtance woody, and its colour brown toward the bottom, and upwards purpliſh, tinged with green; the leaves are large: their ſhape is oblong, with a tendency to oval, and they have an obtuſe point; two ſtand at each joint, and having no foot-ſtalks, their broad baſes cloſe about the ſtalk; their colour is a fine green on the upper ſide, and paler underneath; and their ribs, which are very high and conſpicuous, are naturally of a whitiſh green, but often tinged with purple.

The flowers ſpread from the extremity of the ſtalks into a kind of umbells, and are extremely ſingular and elegant; they are of a pale red towards the ends of the petals, and whitiſh, with a tinge of green at their baſe, but in the middle of the flower the colour is a very lively red.

This variation in the colour of every flower, their elegance ſingle, and the full beauty of the regular cluſter of them, ſtamp upon the plant a character of grandeur, none ſhould neglect, who are at the expence of raiſing exotics.

After each flower come two pods, large, ſwoln, and of a lively green, tinged variouſly with purple: but from the largeſt cluſter of flowers few of theſe are produced, for the generality are abortive.

This is the general figure of the plant, but its flowers demand a more ſtrict attention, for few are more ſingular.

Each flower has its ſeparate cup; this is very ſmall, formed of a ſingle piece, and nicked in five parts at the rim.

The body of the flower is formed of a ſingle petal, divided deeply into five ſegments: theſe are large, and of an oval form, but pointed at the tip, and they naturally bend a little: theſe have the light red tinge we mentioned; in the outer part of the flower, and the united part at the bottom, it is whitiſh and greeniſh.

In the midſt of the flower ſtand five nectaria, or glandules, with a kind of ſolid plates or ſcales, riſing from them: theſe converge, and they are of the fine high and gaudy red, which we have deſcribed, in the central part of the flower; theſe ſolid plates, ariſing from the glandules, are altogether ſingular.

The glandules themſelves are found in the flowers of all the Aſclepias kind: but in others they are auriculated outward, and have a ſort of horn, turning its point inward. The plates in this flower give it an aſpect unlike, not only to the others of its kind, but to every thing in nature.

In the centre ſtand five filaments, ſo ſhort, that they would not be perceived but for their buttons, which are large and oblong: theſe are fixed to a ſhort truncated body, ſplitting at the ſides in five parts.

The ſtyles are two, and they, like the filaments, are ſo ſhort, that but for their ſtigmata, or tops, they would ſcarce be diſtinguiſhable.

Culture of this Asclepias.

It is a native of the eaſt, and of the warmeſt parts of South America, and with us requires the heat of a ſtove to bring it to any degree of perfection.

The method of propagating it is by ſeeds, and great care ſhould be taken to obtain theſe in their pods, for otherwiſe they uſually fail.

Early in the ſpring let a couple of garden-pots be filled with ſome light, rich earth, from an improved part of the garden: and upon the ſurface of this ſcatter the ſeeds at equal diſtances; ſift over them about half a quarter of an inch of the ſame mould, and then ſet the pots up to their rim in a bark hot-bed.

Once in three days give them a gentle watering, with water that has ſtood in the ſtove twelve hours: and every now and then open the glaſſes for a little time, to give them air.

Thus they will ſhoot, and ſooner or later, according to the newneſs or age of the ſeeds, the gardener will ſee his young plants.

Theſe he muſt watch carefully, once in two days giving them a very gentle watering: and when the ſun is hotteſt upon the place, allowing them a little air.

When they have thus arrived at ſome little height, let there be as many ſmall pots provided as there are plants, let theſe be filled with good garden mould, and ſet in the bed for three days, that the earth may be of the ſame degree of heat with that in which they are growing.

Then let them be carefully taken up, and one planted in the middle of each of theſe pots.

When fixed in the mould, let them have a gentle watering, with water which has ſtood to be warmed in the ſtove, and let them be all ſet up to the rim in the bark: let the glaſſes be ſhaded with mats, and little air admitted till they have taken root.

After this they will grow faſt: let them, when they are encreaſed in ſize, be ſhifted into larger pots; and when they are ſo tall as to reach the glaſſes of the frame, let them be taken into the ſtove, and ſet in the bark-bed there.

After this they will require nothing but the common management of ſtove-plants, and they will riſe to their full perfection, and produce their ſingular and elegant flowers in great abundance.

Willow-leaved ſhrub Asclepias.

This elegant and ſingular Aſclepias is very well worth the attention of all who propagate curious plants. It is of regular growth, and pleaſing aſpect, and not only of conſiderable duration in the time of flowering, but full of ſingularity in the fruit.

Linnæus calls it, ſhrubby Aſclepias, with the leaves lanceolate, and turned at the edges. The root is ſpreading, and hung with many long fibres.

The ſtem is woody, and covered with a brown bark. The branches are numerous, and the young ſhoots are green, tinged often in part with red. The leaves on the lower part of the branches ſtand in pairs, but toward the top leſs regularly: they are long, narrow, and of a faint green, curled frequently at the edges, and marked with reddiſh ribs.

The flowers riſe from the bottom of the leaves in ſmall umbells, ſix or eight in each. Theſe have a long common footſtalk, and from the head of that as many ſeparate ſhorter footſtalks as there are flowers. Theſe ſpread out, and form the open rounded head; and the whole umbell naturally hangs or droops a little. The colour of the flowers is a pale whitiſh green in the petals, and a duſkier tinge with ſomewhat of yellow or hoary in the middle.

Each is compoſed of five ſegments of a petal, and a conſpicuous nectarium, and is placed in a cup formed of one piece, cut into five ſlight parts.

The cup is ſmall in compariſon of the flowers, and is permanent.

The five ſegments of the flower reſemble ſo many petals: they are of an oval figure but pointed, and lightly turned with the ſun.

The nectaria are equal in number to the ſegments of the flower, and they ſurround the parts of impregnation. Each is of a figure approaching to oval, but auticulated on the outſide; and from the baſe riſes a kind of ſmall horn, which bends towards the parts of impregnation.

Beſide this there is a truncated body, which covers the organs of impregnation, with five ſcales at the edge, and as many openings at the ſides; this is an appendage of the nectarium.

The buttons are five, they have ſcarce any filaments, and they are buried, as it were by the truncated body of the nectarium among the ſcales.

There are two rudiments of fruit to each flower; they have ſcarce any ſtyles, but are crowned with ſimple ſtigmata, and are at length ripened into two large, oblong, inflated pods, containing numerous ſeeds winged with down, and a looſe receptacle.

Culture of this ASCLEPIAS.

It is a native of the warmer parts of Africa where it lives freely in a dry ſandy ſoil, expoſed to the full ſun; but though it bears this heat and barrenneſs, it is not the ſoil or expoſure moſt ſuited to its thriving. When it happens to fall into the ſide of a thicket, where there is ſhelter, and a better mould, it ſhews more vigour and more beauty. According to theſe differences it will produce flowers of a deeper or paler colour in great variety; and we ſee ſome conſiderable change in that reſpect, but it is the ſtate wherein we have repreſented them they are moſt elegant.

The gardener has his choice of raiſing it from ſeed, or by cuttings; but there is no advantage in the raiſing it from ſeed, which is the more tedious way; and the cuttings take root ſo eaſily, that it is better to depend on them.

The beſt ſeaſon for planting theſe cuttings is June, and they ſhould have the advantage of a hot-bed. In this let them be kept till they have taken good root; and then let them be taken up, and planted ſeparately in pots, of the light compoſt.

They ſhould then be ſet in the hot-bed again, and ſhaded from the noon-day ſun. They ſhould be watered every evening; and when they are well eſtabliſhed, they ſhould be more perfectly hardened by keeping open the glaſſes, and then brought out among the green-houſe plants.

They muſt early in autumn be taken into the houſe, and removed into larger pots, as they increaſe in ſize; always preſerving the whole ball of earth from the former pot about them, and trimming the fibres that hang from its edges.

They will thus grow to ſix or eight feet high, and flower as well as in their native country.

ASH-TREE, *Fraxinus*, a genus of plants ranged by Linnæus under the *polygamia dioecia*, and of which there are three ſpecies. 1. Aſh-tree, with the ſmaller leaves ſawed, and flowers without petals, or the common Aſh-tree. 2. Aſh-tree, with the ſmaller leaves ſawed, and flowers having petals. 3. Aſh-tree, with the ſmaller leaves very entire and taper footſtalks. The firſt is a native of moſt parts of Europe particularly of England, and in ſome gardens is preſerved a variety of it with variegated leaves. The ſecond ſort grows naturally in the ſouthern parts of Europe, and the third in Virginia. Theſe trees are propagated by ſowing the ſeeds as ſoon as they are ripe. The ground where they are ſown ſhould be kept clean all the ſummer, and not diſturbed: when the plants come up they muſt be kept clean from weeds, and if they make good progreſs in the ſeed-bed, they will be fit for tranſplanting in autumn, as ſoon as their leaves begin to fall; and to prevent injuring their roots they ſhould be taken up with a ſpade, placing them at a foot and a half diſtance, in rows three feet aſunder. Here they may remain two years, at the end of which time they will be ſtrong enough for planting in the places where they are to remain. The ground where the plants are raiſed ſhould not be better than that they are deſigned to ſtand in; and it is much the beſt method to make the nurſery upon a part of the ſame land where the trees are deſigned to be planted, and then a ſufficient number of the trees may be left ſtanding upon the ground. This tree propagates itſelf in plenty by the ſeeds which ſcatter in autumn, provided they happen to fall in places where cattle do not come.

Mountain ASH. See the article SERVICE-TREE.

ASHES. The aſhes of all kinds of fuel make a fine manure for lands: they are the moſt proper for cold and wet lands, and ſhould be kept dry till the time of uſing them, that the rain may not waſh out their ſalts; one load of dry aſhes are found by the farmers to go as far as two loads that have been more careleſsly kept; the wetting them moderately ſometimes with urine, or ſoap-ſuds, adds to their virtue; ſix loads of common aſhes are generally allowed to an acre, but two loads of thoſe, preſerved in this manner, will be ſufficient for the ſame quantity of ground.

The advantage that vegetable aſhes are of to land, is abundantly ſeen in the profit of the farmer, by burning his ſtubble, &c. but ſea-coal aſhes are the beſt for cold lands, and their virtue is found to be the moſt laſting of that of any kind. Aſhes are a great improvement to graſs ground, as well as ploughed lands. On the former they are to be ſtrewed in April, and on the latter as ſoon as the corn is ſown.

Soap-aſhes, after the ſoap-boilers have done with them, are found to be of great advantage to cold and ſour lands. The worſt ſort of land we have, which is naturally over-run with furze and heath, has been tried with this manure, in large quantities, and vaſt crops of wheat have been obtained from it for ſix years together. Kiln-aſhes, ſuch as are made of ſtraw, furze, &c. are as good as any, but they are much lighter.

The maltſters in the weſt of England ſift theſe over their corn and graſs; but being very light, this muſt by no means be done in windy weather, and ſucceeds beſt when done juſt before rain or ſnow.

Pot-aſhes, after the pot-aſh-men have done with them, are alſo of great ſervice; but as they have been, in a great meaſure, deprived of their ſalt, they are to be laid on in conſiderable quantities. Turf aſhes are very good for all ſorts of land, but eſpecially for clay land; but theſe are much better when mixed firſt with lime.

ASPARAGUS, a well known genus of plants, generally called Sparagus, and by corruption Sparrowgraſs. It is ranged by Linnæus among the *hexandria monogynia*; and of which there are ten ſpecies; but the only one cultivated in the gardens is Aſparagus with an upright herbaceous ſtalk, briſtly leaves, and an equal ſtiſſula, or the garden Aſparagus. The other ſpecies are kept only in the gardens of the curious for the ſake of variety, and need not therefore be deſcribed here.

The proper ſeaſon for making new plantations of Aſparagus, is in March, that being the proper ſeaſon to remove theſe plants: but it may be done any time in the month, when the weather is mild.

In making plantations of theſe plants, one great article to be conſidered is, to make choice of a proper ſoil: it muſt not be wet, nor too ſtrong and ſtubborn, but ſuch as is moderately light and moiſt, ſo as readily to fall to pieces in digging or raking, &c. and in a ſituation that enjoys the full ſun.

The ground where you intend to make new Aſparagus-beds, ſhould be regularly trenched, and a large quantity of good rotten dung, buried equally in the bottom of each trench. The trenches ſhould be deep enough to admit of the dung's being buried at leaſt twelve or fifteen inches below the ſurface of the ground.

The ground being dug, and laid level, divide it into beds four feet wide, with alleys two feet wide between each bed.

Four rows of roots to be planted in each bed, and ten or twelve inches diſtance to be allowed between each plant, obſerving the two outſide rows of each bed ſhould be ſix inches from the edge.

Next let it be obſerved, that the plants for this plantation muſt not be more than two years, and are preferable, if only one year, old. The ſeed for raiſing theſe plants, may be ſown any time in March, on a bed of rich earth; and when the plants are of a proper height, they muſt be planted out in the following manner.

Stretch your line lengthways on the bed, ſix inches from the edge, and with a hoe, or ſpade, cut a trench cloſe to the line, about ſix inches deep, making that ſide next the line nearly upright; when one trench is opened plant that, before you open another, placing the plants at the diſtance above directed.

Great care muſt be taken in ſetting the plants, that they do not lie flat in the bottom of the trench, or drill, they ſhould be placed nearly upright, againſt the back of it, ſo that the crown of the plants may alſo ſtand upright: let them be placed between two and three feet below the ſurface of the ground, as near as poſſible, in an equal depth, ſpreading the roots ſomewhat regular againſt the back of the trench, at the ſame time drawing a little earth againſt them with the hand, juſt to fix the plant in its due poſition. When one drill is thus planted, immediately with a rake draw the earth into the trench, over the plants, then proceed to open, plant, and cover another drill, as above, and ſo on till the whole is compleated. When they are all planted, let the ſurface of the beds be raked ſmooth, and cleared from ſtones.

At each corner of the beds let a firm ſtake be driven into the ground, as a mark for the alleys.

The Aſparagus being planted, the next care is, when the plants come up, which will be about the end of the next month, to keep them clean from weeds, which muſt be well attended to during the ſummer ſeaſon.

It will be three years from the time of planting, before the Aſparagus-plants produce buds large enough to cut for uſe.

A plantation of Aſparagus, if the beds are properly dreſſed every year in the ſpring and autumn months, will continue to produce good buds ten or twelve years.

It is a cuſtom ſometimes practiſed, in making new plantations of Aſparagus, and not a bad one, to ſow the ſeeds at once, in the beds where the plants are to remain: by this means they are not diſturbed by removal, and, conſequently, cannot fail of producing a regular crop.

But it ſhould be obſerved, that if two pieces of ground were laid down the ſame year in Aſparagus, one planted with young plants, the other ſown as above, with ſeed, that piece which was planted will be ready to cut a year before that which was ſown.

However, to ſuch as chooſe to raiſe a plantation of Aſparagus at once from the ſeed, as above, the method is this: the beds ſhould be four feet wide, and prepared as before directed for the plants, then mark out four or five lines lengthways the beds, along theſe lines, at the diſtance of every nine or ten inches, put in a few ſeeds, covering them half an inch deep.

When the plants have been come up ſome time, they muſt be thinned, leaving only two or three of the ſtrongeſt in each place: and after a while thinned again, leaving but one of the beſt plants in each hole.

A plantation thus raiſed, will produce buds fit to cut the fourth ſpring after ſowing, and the fifth year, will be very fine and large.

Aſparagus may alſo be raiſed from ſeed, in the following manner: ſow the ſeed broad-caſt, all over the bed, then tread it in, and caſt ſome of the earth out of the alleys, evenly over the bed, and rake it ſmooth. The plants will come up in a month or ſix weeks, when they muſt be kept very clean from weeds, by a careful hand, weeding it different times in the ſummer. If the weather is very dry when the plants firſt come up, it will be proper to refreſh them now and then with water, which will greatly forward them in their growth.

They will be fit to plant out for good the following ſpring.

In March the Aſparagus-beds muſt be dreſſed for the ſpring: this is done by forking, or ſlightly digging them with a three-pronged fork: you ſhould, therefore, be provided with a proper fork, which ſhould have three tynes, about nine inches long, the tynes ſhould be perfectly flat, about an inch broad, pretty thin, and the ends of them round and blunt. In forking the beds, be careful to looſen every part to a ſmall depth, taking great care not to go too deep, leſt you wound the crowns of the roots.

The above work of forking the beds, is neceſſary to be done every ſpring, not only to looſen the ground to give liberty to the buds to ſhoot up, but alſo to give free acceſs to the ſun, air, and ſhowers of rain; the beds being forked, they muſt afterwards be raked even, obſerving, that if you do not rake them immediately after they are forked, to defer it no longer than till the end of March, at fartheſt till the firſt week in April: by that time the buds will begin to advance towards the ſurface.

As the method of cutting Aſparagus may not be familiar to every one, it will be proper to explain it.

Provide yourſelf with a knife, the blade of which muſt be eight or nine inches long, about an inch and a half broad at the haft, and not more than half an inch at the point, which ſhould be rounded off from the back, and made ſomewhat blunt, and the edge ſhould be made full of ſmall teeth, like a ſaw; when the buds are three for four inches high, they are fit to cut: ſlip the knife down cloſe to the bud, and take it off three or four inches within the ground; be careful not to wound or break off any young bud coming up from the ſame root, for there are always ſeveral buds in different ſtages of growth, advancing at the ſame time from the ſame root.

After the twentieth or twenty-fourth of June, you muſt deſiſt from cutting, otherwiſe it will greatly weaken the roots: for ſo long as you continue to cut the buds, the roots continue to ſend up new ſhoots, but every time they will be ſmaller: and the roots would ſo greatly exhauſt themſelves, as not to be capable of producing any but very ſmall buds next year.

Before the Aſparagus runs up to ſtalks, the beds ſhould be thoroughly cleared from weeds, a work which cannot be ſo readily done after the ſtalks are run up to a great height.

Particular care ſhould alſo be taken to keep the young Aſparagus-bed perfectly clear from weeds.

The young plants, which were ſown in the ſpring, will be up in June, and ſhould likewiſe be carefully hand-weeded.

In the beginning, or ſome time in October, cut down the Aſparagus ſtalks, and dreſs the beds.

Let the ſtalks, or haulm, be cut down cloſe to, or at leaſt within two or three inches of the ſurface of the beds: carry them immediately off the ground, then with a ſharp hoe, cut up all the weeds, and draw them off the beds into the alleys.

This done ſtretch the line, and with a ſpade mark out the alleys between eighteen and twenty inches, or two feet wide, according to the width they were at firſt made.

Then dig the alleys one ſpade deep, and ſpread the earth, at leaſt the greateſt part of it, neatly over the beds; and as you advance in digging, mind to pare the weeds, which were raked off the beds into the bottom of the trench, and cover them a proper depth with earth; obſerve to dig theſe alleys in a neat manner, that is, let an equal quantity of earth be laid over every bed, and make the edges of the beds full and ſtraight; the alleys ſhould all be of an equal depth, and the bottoms ſhould be level.

Where it is intended to manure aſparagus beds with dung, it ſhould be done in October, but the dung muſt be applied before the alleys are dug.

The dung for that purpoſe muſt be very rotten, and alſo very good: none is more proper than the dung of old Cucumber, or Melon beds; when the haulm and weeds are cleared off, this muſt be ſpread over the beds; let the dung be well broken, and laid of an equal thickneſs in every part: then dig the alleys as above directed, and ſpread a due quantity of the earth of each alley over the dung.

At the ſame time the Aſparagus, which is intended for forcing, ſhould have their ſtalks cut down, and the weeds drawn off the beds into the alleys, as above directed: then dig the alleys to bury the weeds, and as you proceed, ſpread a little of the earth over the beds.

But that which is to be forced the enſuing winter need have nothing more done than to cut down the haulm, or ſtalks of the plants.

The Seedling Aſparagus, which was ſown in the ſpring, ſhould, likewiſe, now have a little dreſſing.

That is, clear the bed from weeds, and then ſpread an inch or two in depth of rotten dung over the bed.

This ſhould not be deferred longer than the beginning of November, and the following method is to be obſerved: cut down the ſtems, or haulm of the Aſparagus, cloſe to the ſurface of the beds, and let this be directly carried away.

Then with a ſharp hoe let every weed on the beds be cut up, and at the ſame time draw them all off into the alleys.

Then ſet the line, and with a ſpade cut, or mark out, the alleys, about eighteen or twenty inches wide: this done, let the alleys be dug out one moderate ſpade deep, and lay the earth neatly over the beds, and as you go on let the weeds which were drawn off the bed be buried in the alleys a proper depth, and let the edge of every bed be made full and ſtrait.

Hot-beds for raiſing early ASPARAGUS muſt be made in the following manner: get ſome good dung for that purpoſe, and ſhake it up in a heap, and in eight or ten days after it will be fit for making the bed.

Make the bed a yard, or three feet and a half high: let the top be made level and ſmooth, then lay on the earth, obſerving to let it be ſix or ſeven inches thick in every part, making the ſurface even: but the frame is not yet to be put on, for the warmth of the bed being at firſt very ſtrong, it might occaſion it to heat too violently.

The bed being thus prepared, begin and place the roots on the ſurface, firſt raiſing a ridge of earth five or ſix inches high, at one end, to place the firſt courſe of roots againſt, then place them one againſt another, as cloſe as can be, till you have filled the bed, obſerving not to lay the roots to the full extent of the bed, but a clear ſpace of at leaſt two inches on each ſide, to receive a wall of earth againſt the outſide root.

The whole being planted, get ſome pretty moiſt earth, and let this be banked up cloſe againſt the outſide roots, ariſing an inch or two above their crowns: this done, cover the crowns of the roots all over with light earth, about two inches thick, which concludes the work, till the buds begin to appear through the ſurface.

When the buds appear through the earth, lay on three inches depth of more earth, and by this time there will be five inches of earth over the tops of the roots, then bank up a little more moiſt earth againſt the outſides, as above directed; this being done, prepare to put on the frame and lights.

Before you put on the frame, let a quantity of ſharp pointed ſtakes, about two feet long, be procured, and alſo ſome thick bands, or ropes of ſtraw or hay; theſe hay or ſtraw-bands, are, by means of the ſtake, to be fixed and carried quite round the top of the bed, from the ſurface of the dung to that of the earth, and are for the frame to reſt on, to ſecure the earth which was banked up againſt the outſide roots, fixing the bands properly with the above ſtakes, thruſting them down at due diſtances into the bed, as far as the top of the ſtakes, to be level with the ſurface of the earth: this done, ſet on the frame, reſting it upon the band of the ſtraw, and put on the glaſſes.

The upper part of the ſtraw, or hay, muſt be level with the ſurface of the earth.

The roots uſed for this purpoſe ſhould be three years old, and never more than four; a frame will contain, in each light, three or four hundred roots, and upwards, if properly placed.

Let it be obſerved, that during the time the bed is without the frame, if there ſhould happen to fall much rain or ſnow, to cover it all over with a good thickneſs of ſtraw, or mats, or otherwiſe, to put on the frame and lights.

It muſt be remarked that for the firſt week or ten days after the bed is made, and the roots are planted, that the ſtate of its warmth ſhould be every day carefully examined: for that purpoſe thruſt two long ſticks down betwixt the roots, into the dung, in different parts of the bed, when upon drawing up the ſticks two or three times a day, and feeling the lower parts, you can readily judge of the degree of heat; when it is found to be ſo violent as to threaten to burn the earth, and ſcorch the roots, it will be adviſeable to pour a large quantity of water all over the top of the bed, ſufficient to penetrate conſiderably down into the dung; and it will be likewiſe proper to bore, with a long thick ſtake, ſeveral wide holes in the dung, on each ſide of the bed, to let in the air, and to let the rank ſteam and burning quality of the dung paſs off more freely; but when the heat is become moderate, the holes muſt be cloſed again.

Likewiſe obſerve when the heat is moderate, it will be very proper to lay a quantity of dry, long litter, round the ſide of the bed, which will preſerve a fine kindly-growing heat, and will defend the bed from being chilled by heavy rains, ſnow, &c.

In the next place, obſerve when the heat of the bed begins to decline, or fall off, you ſhould prepare to renew it as ſoon as poſſible, which is to be done by applying a lining of hot dung to the ſides of it.

When there happens, at any time after the frame is on, to be much ſteam in the bed, the lights ſhould be now and then raiſed about an inch, to let it paſs freely away.

Continue to cover the glaſſes every night, and in bad weather with mats or ſtraw.

The bed, if made and managed as above directed, will begin to produce Aſparagus very thick, in four or five weeks; and provided the heat be kept up, will continue producing buds in great plenty, for about three weeks. A bed for a three-light frame, will for that time produce three or four hundred buds a week.

The method of gathering Aſparagus in hot-beds, is to thruſt your finger down gently into the earth, and break the bud off cloſe to the roots, which they will readily do; but the cutting them with a knife, as practiſed in the natural ground, would by reaſon of the buds coming up ſo very thick, one under another, deſtroy as many, or more than you gather.

When it is intended to have a conſtant ſupply of Aſparagus in the winter and ſpring ſeaſons, till that in the natural ground comes in, you ſhould make a new hot-bed every three weeks.

A quantity of freſh plants muſt alſo be procured for every new bed: for thoſe which have been once forced in a hot-bed, are not fit for any uſe afterwards, either in a hot-bed, or natural ground.

Thoſe perſons who conſtantly would raiſe plants for forcing ſhould ſow ſome ſeed every year, obſerving that when the plants are one year old, to tranſplant them into an open ſpot, in rows, nine inches aſunder, and about the ſame diſtance in the row; when they have two ſummers growth, they are then fit to be taken up for forcing: but if they ſtand three years before you take them up, they will produce much larger buds.

It is neceſſary to have three different pieces of ground always employed at the ſame time with Aſparagus-plants, for the above purpoſe, that is, one piece for the ſeed-bed, with ſeedling plants, which ſhould never ſtand longer than a year before tranſplanted; the other two pieces to be with tranſplanted plants: one to be a years growth from the time of planting before the other, by which method of ſowing a quantity of ſeed, and planting a quantity of plants every ſpring, you will, after the firſt three years, obtain a freſh piece of plants every year, fit for forcing.

The ſeaſon to ſow the ſeed is the laſt week in February, or the firſt fortnight in March: it ſhould be ſown in a ſpot of light, rich ground; ſow it tolerably thick, and tread it in, and ſpread ſome earth on the alley over it, and then rake the ſurface of the bed ſmooth.

This is the proper management of a hot-bed, for raiſing or forcing early Aſparagus: and if this method is followed, the bed will ſoon begin to produce abundantly; the plants will riſe very thick in about a month or five weeks, and be of ſurpriſing quick growth.

The next thing to be obſerved, is that when the heat of the bed begins to decline, it muſt be renewed by applying a lining of freſh horſe-dung to its ſides: this will be required in about eighteen or twenty days after the bed is made, nor muſt it be forgot to cover the glaſſes every night with mats, or long litter: but this ſhould be particularly obſerved, when the plants begin to appear.

Note. In placing the plants on the bed, care ſhould be taken to ſet the crowns of the roots upright, and to gather thoſe of each plant cloſe together, ſo that a bed for a three-light frame may contain, at leaſt, between two and three hundred roots in each light.

The plants for the above purpoſe of forcing, ſhould not be leſs than three, nor more than four or five years old.

ASPEN-TREE, a ſpecies of Poplar, with roundiſh, angularly indented leaves, ſmooth on both ſides, ſtanding upon ſuch long ſlender footſtalks, that they are ſhaken with the leaſt wind; and from this circumſtance the tree has acquired the name of the trembling Poplar or Aſpen-tree. The culture of this tree is the ſame with that of the Abele-tree already deſcribed. See the article ABELE-TREE.

ASPHODELUS, *King's Spear*, a genus of plants ranged by Linnæus under the *hexandria monogynia*, and of which there are three ſpecies. 1. Aſphodelus with a leafy ſtalk and triangular fiſtular leaves generally called the yellow Aſphodel. 2. Aſphodelus with a naked ſtalk, and awl-ſhaped, ſerrated, and ſomewhat fiſtular leaves. 3. Aſphodelus with a naked ſtalk, and ſword-ſhaped ſmooth leaves. Of theſe we ſhall only deſcribe the yellow Aſphodel, the culture of that being ſufficient for all the reſt.

This plant is well known in our gardens, and very well deſerving its place in them, ſpecious, and of eaſy culture; bearing, without ſhelter, the ſeverity of our worſt ſeaſons.

The root is tuberous and yellow; it conſiſts of numerous oblong parts connected to one common head, and hung with thick fibres.

The leaves riſe in a vaſt tuft, and are long, ſlender, and of a pale green, naturally greyiſh, often yellowiſh: they are angulated, edged, hollowed, and ſharp pointed.

The ſtalk is a yard high, round, robuſt, and perfectly upright.

The leaves are placed irregular on it, and they are like thoſe from the root but ſmaller, and uſually paler.

The flowers are extremely numerous, they form a long ſlender ſpike, covering the ſtalk from the middle upwards, and ſurrounding it innumerably; buds opening full blown, and fading flowers always cluſtering cloſe round it together.

They are placed on a ſhort and ſlender footſtalk, and are in colour of a pure gold yellow. They riſe without any cup from the footſtalk, and each appears to be compoſed of ſix oblong, broad, and pointed petals; but they are really ſegments of one petal, for the baſe is entire, and the flower comes off unbroken. In the baſe of the flower appear ſix little fibres, which riſe from the bottoms of the ſegments, and form a little globular protuberance.

The filaments are ſix, and they deſerve attention, they are inſerted into theſe films which compoſe the nectarium; they are ſmaller from the bottom to the top arched, and of different lengths, three longer and three ſhorter. Their buttons are oblong, and very conſpicuous.

The ſtyle riſes ſingle in the midſt of theſe from a roundiſh rudiment of the ſeed-veſſel, and is terminated by a blunt ſtigma at top.

Culture of this ASPHODEL.

It is a native of the warmer parts of Europe, fringing the margin of little brooks and hanging from the ſides of craggy hills where there is a light ſoil, and ſome, but not too much moiſture.

This muſt be our rule of propagating it; and very little trouble is required. Let a mixture be made of two thirds light paſture earth, and one third pond mud, add to half a load of this a buſhel of cow dung, and the ſame quantity of wood-pile earth, and mix them well together; chuſe a ſpot in the garden where the morning ſun ſhines freely, and dig in this compoſt.

In the middle of Auguſt procure ſome parted roots, and plant them at two foot diſtance, burying the head half an inch. They will require no care but that which is taken in common with every thing in the border; and they will flower the next year. After this to keep them in perfection, they ſhould be every autumn taken up, the ſide roots cut off and freſh compoſt put into the place. They are then to be planted at the ſame diſtance as at firſt, and they will thus preſerve their full vigour.

The ſeeds, which ripen freely in round fleſhy capſules, will grow as freely in the open ground; but there is no need for the trouble, the plant is ſo common, and increaſes ſo faſt by the root, that enough is always ready for that propagation; and there is no advantage in raiſing it from ſeed, for it is not one of thoſe plants whoſe flowers admit a variety of colouring.

Care ſhould be taken not to plant them in ſmall borders, among tender flowers, for they will draw away all the nouriſhment, and ſtarve every thing elſe.

Alopecuroide **ASTRAGULUS**, there is ſcarcely ſo ſingular a plant in our gardens as this; and though it can by no means come under the denomination of a flower, few are more elegant. Its whole form pleaſes the eye, and its hardineſs and eaſy culture are a further recommendation.

Linnæus calls it, upright Aſtragulus with cylindric ſpikes of flowers, almoſt without footſtalks, and woolly cups and pods.

The root is fibrous and ſpreads far. The ſtalk is round, thick, upright, hairy, and a yard high, of a pale green, not branched, jointed, bent a little from joint to joint, and hollow. The leaves are extremely ſingular and beautiful. One ſtands at each joint of the ſtalk, and they are of the winged or pinnated kind, a foot in length, and narrow. The rib is pale, and covered with a long woolly down. The pinnæ are about four and twenty pair on each, with an odd one at the end: they are oblong, moderately broad, undivided, and of a pale green, covered with the ſame woolly hairs which overſpread the reſt of the plant; and the ribs are beautifully twiſted, or waved in their courſe.

The flowers are moderately large, of a yellow colour, and they are cluſtered together in very elegant thick heads: theſe are of the ſize of a hen's egg, and at firſt they appear much like that form; but as the upper flowers open they become cylindric. They are placed in the boſoms of the leaves, almoſt without footſtalks, and their cups are woolly as the reſt of the plant. The woolly matter upon theſe is white, very long and thickſet, and adds greatly to the beauty of the tuft: the pale yellow flowers appearing with a particular luſtre as they burſt from this ſilvery bed.

The leaves ſtand at conſiderable diſtances, and theſe noble heads of flowers riſe erect from their boſoms, and run up cloſe to the ſtalk: the whole plant has a ſingular, but not unpleaſing ſmell.

Culture of this ASTRAGULUS.

The plant is a native of ſeveral parts of Europe, and the ſeeds of it have lately been received from Siberia. It loves a deep rich mould, and will bear any expoſure in our gardens. The ſeeds ripen very well with us, and the beſt method of raiſing the plant is this.

Dig up in the nurſery a bed of good mould; and in the latter end of March level the ſurface, and ſcatter on ſome of the ſeeds ſaved from a ſtrong plant, and kept dry during the winter. When the plants have ſome little ſtrength take up the weakeſt, and leave the others at eight inches diſtance. Thus let them ſtand till October, only keeping the bed free from weeds, and in dry weather watering it.

Then let ſome deep holes be opened in different parts of the borders where the plants are intended to flower; and let the plants be taken up to the full depth of their roots with a ball of their own earth. Let them be planted with care, and the mould be ſettled about them by a moderate watering. Thus they will root well during the winter, and flower the ſucceeding year with great ſtrength. They ſhould not be tied up to ſticks when they are ripe to ſtalk, for their ſtem is of ſufficient ſtrength, and there is a pleaſing wildneſs in their free manner of growing.

ASTER, *Starwort,* a genus of plants ranged by Linnæus under the *ſyngeneſia polygamia ſuperflua.*

Of this genus there are no leſs than thirty diſtinct ſpecies which are enumerated here; it will be ſufficient for us to deſcribe the China Aſter, eſpecially as the character of the Aſter tribe is ſo ſtrongly impreſſed upon it.

The garden ſcarce affords a more elegant flower than this, when double and well coloured: and there is great advantage in its bearing the open air, and common ground. Linnæus calls it Aſter with oval, angulated, and dentated leaves on footſtalks; and with broad leafy cups terminating the ſtalks and branches.

The root is compoſed of numerous fibres connected to a ſmall head; they are long, white, and ſpreading; and in proportion as they have room to extend themſelves the plant flouriſhes.

The ſtalk is round and ridged, of a purpliſh colour, very much branched, and two feet high.

The leaves toward the lower part are oval, angulated a little, variouſly indented, placed on footſtalks, and of a deep blackiſh green.

Thoſe on the upper part of the ſtalks are narrower and have no footſtalks; they have ſeveral deep notches on the ſides; their colour is a ſomewhat paler green, and their ſurface rough. Thoſe at the extremities of the branches, and juſt under the flowers, are narrower yet and paler; they are waved a little at the edges, but they have no indentings. The flowers terminate all the branches, and there are ſeveral others on ſhort footſtalks, which riſe from the boſoms of the upper leaves.

In the ſingle and natural ſtate of the plants they are extremely large and elegant; conſiſting of a ſeries of violet coloured rays, ſurrounding a golden diſk; but in that improved condition to which the plant is brought by modern culture, the variety and luſtre of the flowers is almoſt beyond imagination. The rays inſtead of enriching a large diſk in a large ſeries, are numerous, and diſpoſed in one range within another with a moſt pleaſing irregularity: in colour they are violet, blue, crimſon, or white; or of any of the tincts which painting can produce from a mixture of thoſe three.

In either of theſe colours, the plant covered with a multitude of flowers on all its ſpreading branches, affords a moſt pleaſing appearance; and a number of them placed at a moderate diſtance, with other autumnal flowers between, gives a grace, that ſcarce any thing equals, advanced ſeaſon when they flower.

The cup is formed of ſeveral ranges of leafy ſcales.

The flower is compoſed of a number of tubular floſcules, ranged cloſe together in a diſk, with a circle of ſurrounding rays.

The tubular floſcules in the diſk have the rim cut into five ſegments, and expanded; and in theſe are five ſhort filaments, with long buttons which coaleſce into a cylinder. In the centre of them ſtands a ſingle ſlender ſtyle ſplit at the top. This riſes from an oblong rudiment, crowned with a little rim, which was the cup of the particular floſcule. The rays are long, and broadeſt in the middle, and they have three indentings at the end. Theſe have at their baſe a rudiment of a ſeed, and from it a long ſlender ſtyle with two heads; but there are no filaments or buttons. Theſe are therefore female floſcules; the tubular ones in the diſk hermaphrodite: both theſe and the others are ſucceeded by perfect ſeeds.

Culture of the China ASTER.

In the middle of March let a hot-bed be prepared for the ſeeds; and covering it five inches with fine mould, when it is of a due temper, the heat gentle, and the mould warm through, let the ſeeds be ſcattered on with an even hand, and a quarter of an inch of the ſame mould be ſifted over them.

When the young plants appear let them be thinned where they riſe too cloſe; and from this time let the glaſſes of the bed be raiſed more and more every day, that the plants may be habituated to the air. The common error is the keeping them too cloſe in this firſt bed, and then removing them to another of the ſame kind.

They ſhould be planted out of the firſt bed into the open ground, it muſt be in a well choſen ſpot, and their ſucceſs depends upon the hardening them in the very firſt period of their growth.

If they are drawn up weak, tall, and tender at this time, they will be checked greatly upon removing into the air, and inſects will ſeize on them; they never will have their full bigneſs, nor their true ſhape.

Chuſe a piece of ground in the ſeminary, that is well ſheltered from the cold winds, and open to the morning ſun. Let a bed be well dug up in this a full ſpade deep, and the mould perfectly broke. When the plants on the hot-bed are three inches high, let this bed be marked out into ſquares of ten inches bigneſs; and in the evening of a cloudy day, let the plants be taken up, each with a good ball of mould; and holes being opened ready for their reception in this new bed, let them be planted one in the centre of each ſquare.

Let the mould be carefully gathered about them; and give them a moderate watering. Shelter them with a reed-hedge to defend them from the wind and ſun till rooted; and promote this by frequent moderate waterings. Every evening let theſe be repeated, unleſs natural ſhowers happen. Proportion the quantity of watering to the condition of the mould, it muſt never be made wet or ſappy, nor ever ſuffered to be very dry.

Once in four days let the ground be broke with a hoe; and if any plant among them appear blighted, let the injured part be cut off; and nature left to her chance for renewing it. It is better to cut down a plant on this occaſion, within one joint of the ground, than to ſuffer it to continue in that diſeaſed ſtate; there will a better plant riſe from the bottom than could have been made from the whole.

Six weeks the plants ſhould remain in this bed; and after that they will be fit for removing to the places where they are to flower.

Some keep them longer out of the garden, but it is wrong, for they bear removing worſe; and the flower buds being formed, the beauty of the plant is often ſpoiled by the check they receive at that time.

It is beſt to have one large bed for thoſe plants, not to diſperſe them into borders. The inferior kinds may be placed in that manner, but the fine ones ſhould be preſerved ſeparate.

When the plants have had ſix weeks growth in their ſecond bed, let a fine warm ſpot be choſen for them in the garden, and a bed dug up two ſpade deep, the mould fine and freſh. At the ſame time let ſome holes be opened ed in different parts of the common borders. Let the bed be marked with lines length-way and acroſs, at a yard diſtance, and in the centre of each open a large hole.

In a cloudy evening take up the plants out of the nurſery bed,each with a good ball of earth.

Such, as in ſpite of all care have been damaged, are to be planted in the borders: the fine ones in theſe holes, one plant in each; the mould muſt be well cloſed about them, and they muſt be here as at firſt, ſhaded, and watered every evening, till they have taken root.

A ſhowery ſeaſon is a great aſſiſtance, at the time of this tranſplanting, but if nature withholds this benefit, the gardener muſt ſupply its place by frequent waterings.

Though a ſhowery time is a great advantage, he muſt not defer the work in expectation of it: for on the making this laſt tranſplantation in good time, depends the future ſucceſs of the plants.

When they are well rooted in the new bed, they will require no more care than to have the ground between them at all times kept clear from weeds, and once in ten days very well broke, to the depth of an inch or two, with a hoe. The waterings muſt alſo be frequently repeated. In this manner the China-Aſter will be brought to flower, in its full perfection.

AVENUES, are walks planted on each ſide with trees, leading to ſome particular place, and terminating in a proſpect. All Avenues that lead to a houſe, ought to be at leaſt as wide as the whole front of the houſe, if wider, they are ſtill better; and Avenues to woods and proſpects, ought not to be leſs than ſixty feet wide. The trees ſhould not be planted nearer to one another than thirty-five feet, eſpecially if they are trees of a ſpreading kind: and the ſame ought to be the diſtance, if they are for a regular grove.

The trees moſt proper for Avenues with us, are the Engliſh Elm, the Lime, the Horſe-cheſnut, the Beech, and the Abele. The Engliſh Elm will do in all grounds, except ſuch as are very wet and ſhallow, and this is preferred to all other trees, becauſe it will bear cutting, heading, or lopping in any manner, better than moſt others. The rough or ſmooth Dutch Elm, is approved by ſome, becauſe of its quick growth: this is a tree which will bear removing very well, it is green almoſt as ſoon, and continues ſo, as long as any plant whatever. It makes an incomparable hedge, and is preferable to all other trees, for lofty eſpaliers.

The Lime is valued for its regular growth, and fine ſhade.

The Horſe-cheſnut is proper for all places that are not too much expoſed to rough winds.

The common Cheſnut will do extremely well in a good ſoil, and riſes to a conſiderable height, when planted ſomewhat cloſe, though when it ſtands ſingle, it is rather inclined to ſpread than to grow tall.

The Beech is a beautiful tree, and naturally grows well with us in its wild ſtate, but it is leſs to be choſen for Avenues than the before-mentioned, becauſe it does not bear tranſplanting well, and is very ſubject to miſcarry.

The Abele is fit for any ſoil, and is the quickeſt grower of any foreſt-tree; it ſeldom fails in tranſplanting, and ſucceeds very well in wet ſoils, in which the others are apt to fail. The Oak is but little uſed for Avenues, becauſe of its ſlow growth.

The old manner of planting Avenues was with regular rows of trees, and this has been always followed till of late; but we have now a much more magnificent method, by ſetting the trees in clumps, or plattoons, making the opening much wider than formerly, and placing the clumps at about three hundred feet diſtance from one another. In each of theſe clumps there ſhould be planted either ſeven or nine trees: but this is only to be practiſed where the Avenue is to be of ſome conſiderable length, for in ſhort walks it will not appear ſo elegant as ſingle rows of trees. The Avenues made by clumps are fitteſt for parks. The trees in each clump ſhould be planted about three feet aſunder, and a trench ſhould be thrown up round the whole, to prevent the deer from coming to the trees to bark them.

AUGUST, the eighth month of the year, and in which the following general directions ſhould be obſerved by the gardener.

In the flower-garden tranſplant the layers of Carnations, Pinks, and Double Sweet-William, which by this time will have taken root, if timely laid. Take great care of the Auricula-plants, and now the Seedling Auriculas will be fit for tranſplanting. In the parterre clip the evergreens, hedges, and pyramids, which in a wet ſeaſon will be much wanted. Make layers of all ſorts of ſhrubs and trees, which remain abroad all winter, always obſerving to lay down the moſt tender ſhoots. As the ſeaſon advances in heat, and the ſhowers are few, the plants of value will require watering, and moſt of all thoſe in pots; though potted plants bear leſs water at this time, than thoſe in the full ground, they require it oftener. Continue the care of gathering the ſeeds of flowers, as they ripen, and lay them in a dry, ſhady, and airy place, to harden. Continue the care of thoſe ſeedling plants of the tender kind, which are to take their growth in the ſtove. Thoſe which have been removed into large pots, will require ſhade and water, till they are rooted; and thoſe which are yet in the ſmall pots, into which they were planted from the ſeed-bed, muſt, as they grow to a due ſize, be tranſplanted, and rooted afreſh, with the ſame care. While theſe are preparing to take their growth in the ſtove, thoſe which are there already, muſt be refreſhed with as much air as can be ſafely admitted. Go round the plants in flower, trimming each; if an irregular ſhoot appears, take it off; take off alſo all decayed leaves, and let no flower remain which is paſt its full glow of beauty. Next, go over the ground, between the plants, with a ſmall hoe. Inſects are as numerous in the flower garden at this ſeaſon, as in any other part of the ground: theſe muſt be deſtroyed without hurting the plants, if poſſible. The tender ſhrubs, lately inoculated, will now require to have their bandages looſened, that the ſap may circulate freely. The flowers of the ſummer, towards the end of this month, are going off, and thoſe of the autumn coming in. Mark thoſe of the firſt, intended for ſeed, and tie them to ſticks, and cut down the ſtalks of the others, or pull up thoſe that are annual, and periſh after flowering.

Break the mould about the autumnal plants that are coming to flower, cut off all irregular ſhoots, pick away dead leaves, and give them every evening a gentle watering. Clear all the borders from weeds, and gather ſeeds as they ripen, chuſing for this purpoſe the afternoon. See the graſs is cloſe mowed, and the gravel clean and well rolled.

In the ſeminary continue to bud the later kinds of fruit-trees, and look carefully over the ſtocks, which were budded the preceeding month: the bandages of theſe muſt be looſened, that the ſap may have free courſe.

Look carefully to the ſeed-beds of young ſtocks for future budding: they muſt be weeded and watered, and as the plants increaſe in height, this care muſt be increaſed.

Keep your ground clear from weeds between the trees, and train up the ſeveral ſorts of evergreens, foreſt-trees, and ſhrubs, for the ſeveral purpoſes they are deſigned, but do not trim the ſtems of ſtandard-trees too cloſe: for if they have not ſome ſhoots left on the ſides of their ſtems, to detain the ſap, they will not be able to ſupport their heads. Towards the end of this month, you may plant cuttings of Laurels and Honey-ſuckles: you may alſo plant cuttings of Gooſeberries and Currants; you ſhould alſo, towards the end of this month, begin to clear and trench the ground, where you intend to plant ſtocks, or young foreſt-trees, in autumn. Look carefully to the ſeedling trees, obſerve that they do not ſuffer by drought, and that they are not overborne by weeds, which at this ſeaſon ſoon get up to a height.

In the fruit garden look carefully over the wall-fruit-trees, to deſtroy ſnails and other vermin, which will gnaw your choice fruits, and ſpoil them. Hang up ſcare-crows of feathers, or wings of birds, or intire birds with the entrails taken out, to fright away ſparrows, and other birds, that will peck your fruit as ſoon as it ripens, or place lime-twigs about the trees, and now and then fright them, by diſcharges of a piſtol; and where it was not done the former month, you ſhould fix ſome phials, with honey-water, in different parts of your trees, to deſtroy the waſps, which will drown themſelves; theſe phials ſhould be fixed before the fruit begins to ripen, when the waſps and flies will be much ſooner inticed to the water, than they will after they have taſted the fruit. Where any branches of trees project from the wall, or have been diſplaced by winds, they ſhould be carefully faſtened to the wall in their due poſition, that the fruit may receive the benefit of the ſun to ripen it, but take care not to pull off the leaves of the trees, as this would expoſe the fruit too much, whereby it would become hard, and ſeldom ripen kindly, eſpecially when it is done long before the fruit is ripe. Your Vines in the vineyard, and thoſe againſt the wall, ſhould now be gone over for the laſt time, pulling off all trailing branches, which have been lately produced, and faſtening ſuch branches as are looſe in their proper places; you ſhould alſo obſerve to keep the ground clear from weeds, between the rows of the Vines, untie the buds of the fruit trees, which were inoculated the laſt month, otherwiſe their bandage will pinch the bark of the ſtocks, and will prevent their growing equally in the part where the bud is put; you ſhould alſo obſerve to clear the lower part of your ſtocks from ſhoots, and keep the ground clear from weeds, near the roots of the fruit-trees.

In the kitchen-garden you ſhould ſow Onions about the beginning of this month, to ſupply the table early in the ſpring for ſallads, and other uſes: and leſt the winter ſhould prove ſevere, it will be proper to ſow a few Welch Onions at the ſame time, as theſe will endure the greateſt colds, when the common ſorts are eaſily deſtroyed. You ſhould alſo ſow Spinach, to ſupply the kitchen in winter and ſpring. About the tenth or twelfth day of this month, you ſhould ſow the early Batterſea and Yorkſhire Cabbage-ſeeds: for that which is ſown before will run to ſeed in the ſpring. If the winter is mild, and if it is ſown later, the plants will not have ſtrength to reſiſt the cold. About the twentieth day of this month ſow ſome Cauliflower-ſeed for the early crop, to be planted under hand-glaſſes and under the walls, where they are deſigned to ſtand open.

About the twenty-fifth ſow ſome more ſeeds for a ſecond crop, to plant under frames, to abide the winter. About the middle, or towards the end of this month, ſow ſome common Cabbage Lettuce, and ſome brown Dutch Lettuce, to ſtand the winter, on warm borders, without covering; you may ſow alſo, towards the end of this month, ſome Cos and Sileſia Lettuce, to plant on warm borders, near walls, pales, or hedges. In moiſt weather tranſplant Endive and Celery for blanching; and now you may tranſplant ſome of the Lettuces, which were ſown the former month, to ſupply the kitchen in autumn. Towards the end of the month you ſhould ſow ſeveral ſorts of ſeeds, which remain a long time in the ground, and, which if ſown in the ſpring, will often miſcarry. The beds of Coleworts, &c. which were ſown the laſt month, ſhould be carefully weeded: and if the plants are too thick, ſome of them ſhould be drawn out, and tranſplanted into another ſpot, that thoſe which remain may have room to grow. Cut off the flowering branches of moſt ſorts of aromatic plants, which are paſt flowering, that they may make new ſhoots before winter. Pull up Onions, Garlick, Rocombole, and Eſchalots; when their leaves begin to wither and fall, ſpread them thin, in an airy place, to dry, before they are put up for winter uſe. In dry weather earth up the large Celery, but ſo as not to bury the hearts of the plants; tie up the Endives that are full grown, or cover them with boards or tiles, to blanch. All ſmall ſuckers, which come out on the ſides of ſuch Artichokes, as were planted in the preceding ſpring, ſhould now be cut off, becauſe, if they are permitted to remain, they will ſtarve and weaken the fruit: they ſhould alſo be cleared from weeds, Tranſplant ſuch Brocoli, as was not planted out in the preceeding month, into the place where it is to remain for flowering; and you may yet tranſplant ſome Savoys, to come late in the ſpring. Obſerve to keep the roots of the Melons from too much wet. The Cucumbers for pickling ſhould now be looked over two or three times a week, to gather ſuch as are fit, becauſe in a ſhort time they will grow too large for that purpoſe. The Aſparagus planted in the former ſpring, ſhould now be carefully cleared from weeds, as ſhould alſo your winter crops of Parſneps, Leeks, Beets, and Cabbages. The dunghills ſhould alſo be cleared from weeds at this ſeaſon, to prevent the ſeeds ſcattering, and being by that means carried into the garden. In this month you may plant ſlips of aromatic plants, where it was omitted in the ſpring. Cut ſuch herbs as are now in flower, to diſtil, or to dry for winter uſe. Continue to ſow the ſeeds of Creſſes, Rape, Turnep, Radiſh, Muſtard, and other kind of ſallad herbs, every week, and gather all ſorts of garden ſeeds, which are now ripe. Sow Turneps for a latter crop, any time before the twentieth of this month. Earth up the Finochia, which is full grown, to blanch it, that it may be fit for uſe; and continue to tranſplant Celery into drills, that you may have a ſucceſſion to ſupply the table all the ſeaſon.

The ſpinach which was ſown laſt month for winter uſe, will now be fit to hoe, and ſhould be cut down where it grows too cloſe.

AVICENNIA, a genus of plants, of which there is no Engliſh name, and only one known ſpecies; it is one of the trees which give a diſtinguiſhing beauty to the Indian foreſts. It is large and noble, equal to our elms in height, and thickneſs of the trunk, and full of branches; the bark is rough, and of an olive brown, the wood white and brittle, and the young ſhoots of a greyiſh green.

The leaves are very numerous and elegant, large as thoſe of the Laurel, and not unlike them in form: they are placed in pairs, and have ſhort footſtalks; their colour on the upper ſide is a ſtrong green, on the under, greyiſh: and they are of a firm ſubſtance; the flowers crown the extremities of the branches, in large cluſters; their colour is a bright yellow, edged with white, and they are very fragrant; each has its ſmall permanent, green cup: this is formed of one piece, and divided into five ſegments, at the edge; the flower is formed of one petal, which is divided into four ſegments, of an oval form, but pointed.

In the center riſe four ſhort filaments, with divided buttons, and in the midſt of them a ſingle ſtyle, ſhort, permanent, crowned with a pointed head, and riſing from an oval rudiment: this, by degrees, enlarges into an oval fruit, with a point, which in one cell contains a ſingle ſeed, conpreſſed, oblong, and ſo full of vigour, that it will ſhoot out the firſt traces of root and leaves, while contained in the fruit.

Druggiſts have long been acquainted with this fruit, under the name *Anacardiums*.

Culture of the AVICENNIA.

The method of raiſing this elegant tree, is from ſeed, and the certainty of ſucceſs conſiſts in obtaining that freſh.

In ſpring it muſt be planted carefully, in a pot of freſh mould, covered a quarter of an inch, and ſet in a bark-bed, which has not too much heat. When the young plants appear, they muſt be watered: when three inches high, they muſt be taken up, each with as much of the mould, as can be preſerved about it, and planted in ſeparate pots: theſe muſt be again ſet up to the rim in bark, ſhaded well, and watered lightly, till they are rooted: they muſt then be inured, by degrees, to bear a little air, and afterwards ſet out among the green-houſe plants; they muſt be watered frequently, and early in autumn taken into ſhelter.

As they increaſe in bigneſs, they muſt be removed from time to time into freſh pots, of larger ſize: and every time there muſt be as much of the old mould preſerved about them, as will ſecure them from receiving any check in the removal: and they ſhould be every time ſhaded, till well rooted.

AVOCADO, or AVOGATO PEAR, a genus of trees, of which there is but one known ſpecies.

This tree grows in great plenty in the Spaniſh Weſt Indies, and in the iſland of Jamaica: it has been tranſplanted into moſt of the Engliſh ſettlements in the Weſt Indies, on account of its fruit, which is not only eſteemed by the inhabitants as a fruit to be eaten by way of deſert, but as very neceſſary for the ſupport of life; the fruit of itſelf is very inſipid, for which reaſon it is generally eat with the juice of lemons and ſugar, to give it a piquancy. Some people eat it with vinegar and pepper.

This tree, in the warm countries, where it is planted, grows to the height of thirty feet, or more, and has a trunk as large as our common apple trees; the bark is ſmooth, and of an aſh colour: the branches are beſet with pretty large, oblong, ſmooth leaves, like thoſe of Camel, which are of a deep green colour, and continue on the tree throughout the year.

The flowers and the fruit are, for the moſt part, produced toward the extremity of the branches.

The fruit is as large as one of the largeſt pears, incloſing a large ſeed with two lobes, contained in a thin ſhell.

In Europe, thoſe perſons who delight in collecting exotic plants, preſerve this as a curioſity: and though there is little hope of its producing fruit with us, yet for the beauty of its ſhining green leaves, which continue through the winter, it is well worthy their attention.

It is propagated by ſeeds, which ſhould be obtained as freſh as poſſible from the countries of its growth; and if they are brought over in ſand, they will be more likely to grow than ſuch as are brought over dry.

Fill ſome pots with light earth, ſow the ſeeds in theſe, and plunge them into a hot bed of tanners bark. In five or ſix weeks the plants will come up: while young they muſt be treated with great care and tenderneſs: and when they are about five or ſix inches high, they ſhould be carefully tranſplanted: if there are more than one plant in a pot, they muſt be ſeparated, being cautious to preſerve a ball of earth to the roots of each, and plant them in ſmall pots, filled with the ſame earth as the ſeeds were ſown in, then plunge them into a hot-bed of tanners bark: ſhade them till they have taken new root, after which time admit freſh air to them, according to the warmth of the ſeaſon.

Towards Michaelmas remove them into the ſtove, plunge them into a bark bed, and water them gently twice a week. In ſpring remove the plants into pots a ſize larger, and renew the bark-bed with freſh tan, this will refreſh the plants greatly. They ſhould be kept in the ſtove, for, except in the warmeſt parts of ſummer, they are too tender to bear the open air of our climate.

AURICULA, *Bear's-ear*, a diſtinct genus of plants, according to all botaniſts, except Linnæus, who conſiders it a ſpecies of the Primula, or Primroſe, and ranges it among the *pentandria monogynia.*

The Auricula plant has, of late years, been cultivated with extraordinary care and pains, by the curious in gardening, being in great eſtimation as it produces a flower of exceeding beauty. It is diverſified with a greater variety of colours, and exhibits more properties to complete the idea in the fancy of the floriſt, than any other ſpecies of the blooming vegetable tribes. The flower conſiſts of a bunch, or truſs of petals, by floriſts called pipps, ſupported by as many pedicles, or footſtems, ariſing out of the top of the main ſtalks: the properties of a fine Auricula may, therefore, be diſtinguiſhed and divided: firſt, into thoſe that regard the pipps, ſecondly, thoſe which reſpect the bunch, or truſs, and thirdly, thoſe which regard the main ſtalk.

The petals, or pipps of an Auricula, have four remarkable parts: the diſk, or outer rim, the eye, or inner rim, the tube, or pipe, and the bruſh, or thrum, ſo termed in the language of the floriſts, but by the botaniſts called filaments, and antheræ. The properties belonging to the perfection of the pipps, are firſt, the diſk, or rim, to be of a lively, good colour, or colours, ſuch as may ſuddenly ſtrike and captivate the ſight, for on this properly depends the foundation of all the reſt. If the colours, therefore, make a faint, or dead appearance, or are of an inelegant, or ordinary tinge, or hue, ſuch a flower is not to be valued, even though all its other properties ſhould be the moſt excellent, becauſe all the reſt are of no other account, but as they aſſiſt in the more full and perfect diſplay of this chief one, of colour.

2. The colour, in all painted and brindled flowers, ought to be ſo equally diſtributed over the rim, or diſk, that there may be an agreeable uniformity amidſt the variety, that the ſight may not be offended with any diſproportion, or ſee one ſide remarkably of a lighter, or darker hue, than another.

3. The outer edge of the rim ought to be of a circular figure, or at leaſt ſo near it, as that the indentures may bear but a ſmall proportion to the breadth of the diſk: for when theſe are deep and wide, and the points of the ſegments ſtand in the form of a ſtar, greatly divided, the vacancies will offend the ſight with an obvious deficiency and want: the caſe is ſtill worſe in thoſe pipps which are ſubject to run out to a greater breadth on one ſide of the eye than on the other: this irregularity and diſproportion is very diſagreeable.

4. The eye, which is the annulus that environs the tube, or pipe, ought to be formed like the diſk, either perfectly, or nearly round, and of one entire clear colour, of a ſtrong and pure white, in all painted and brindled flowers, and either the ſame, or of a bright yellow, or good ſtraw colour, in whole coloured flowers.

5. The eye ſhould be well defined from the diſk, that is, it ought not to be mixed with, or ſhaded into it, ſo as to occaſion any indiſtinctneſs between the edge of one and the other.

In flowers, where theſe two properties of the eye are imperfect, the lively contraſt between the rim and the eye, which otherwiſe, ſhew each other to advantage, is in a great meaſure deſtroyed, though they may be allowed, in ſome meaſure, to be blended by the fine meal, or powder, which moſt Auriculas have a ſhare of, but not ſo much as to render the edges indiſtinct.

6. The face of the whole pipp, diſk, and eye, ought to be ſo well opened, as to lie exactly, or nearly flat, for when it either inclines inward, which is called cupping, or throws its extremity backward, both the true form of the flower, and part of the colour, are thrown out of ſight, and the whole truſs is greatly diſfigured.

7. The tube, or pipe, ſhould ſtand exactly in the center of the pipp, and be truly circular.

8. The tube ſhould be well filled with filaments and antheræ, in the form of a bruſh, generally called the thrum, riſing even with the face of the pipp, for when the ſtyle riſes only like a pin, without being encompaſſed with the apices to the ſame height, the flower is called pin-eyed, and ſhews a vacancy ſo very unpleaſant to the curious eye of a floriſt, that ſuch flowers, failing in this central beauty, though they may otherwiſe have good properties, are held in little eſteem.

9. The thrum ſhould be of a bright colour, and the filaments and antheræ, of which it is compoſed, clear and diſtinct, for when they ſeem clotted together, or appear miſhapen, and of a dull colour, the beauty of the flower is much hurt and impaired.

10. The rim, the eye, and the pipe, ought all to bear an agreeable proportion to one another, for where any one of theſe is beheld either too large or too ſmall, with reſpect to the other two, it will give the ſight of a floriſt great offence: thus, if the rim is too large, the whole pipp will look heavy and clumſy, and the eye will appear narrow and mean: if the rim is too ſmall, it will look abortive, and the eye monſtrous: alſo, if the pipe is too wide, the thrum cannot fill it duly, and it will appear vacant: if the pipe is too ſmall, or narrow, it will ſeem pinched, and the thrum will not have room, ſo that there will be an apparent want of due grace, air, and freedom: perhaps the beſt proportions may be obſerved where the ſemi-diameter of the pipe is one, the

breadth of the annulus of the eye, one, and the breadth of the diſk, or rim, one and a half.

Second. Of the bunch, or truſs.

11. It is an excellent property of an Auricula to be a good truſſer, that is, one which generally puts forth a great number of pipps from the main ſtalk, for by that means the beauty of the flower is greatly magnified, and makes in the whole a moſt delightful appearance.

12. The length of the pedicles which ſupport the pipps in the truſs, ſhould be proportioned to the number and ſize of the pipps they ſuſtain: for if the pedicles are very long, and the pipps few and ſmall, there will be unſightly vacancies in the truſs: or if they are ſhort, and the pipps many and large, they would be too much crowded together, ſo that neither the colours can be fully viewed, nor the other properties of the pipps fully diſplayed.

13. The pedicles ſhould be ſufficiently ſtrong and firm, that they may not droop with the weight of the pipps, nor fall looſe in a diſorderly manner, but ſupport the truſs entire and cloſe, without either vacancy or crowding, ſo as to appear one compleat free-blown flower.

14. The pedicles ought to be nearly of the ſame length, ſo that the pipps may ſtand together of the ſame height, and form a regular umbell, or rather corymbus, which is the formal perfection of the truſs.

15. The pipps ſhould be all ſimilar, that is, ſo near of the ſame ſize and colour, as not to be eaſily diſtinguiſhed from each other, for otherwiſe the unity and harmony of the truſs will be deſtroyed, and though ever ſo perfectly formed, it will appear as if it was made up of pipps, taken from different Auriculas.

16. It is an exceeding good property of an Auricula to blow freely, and expand all its pipps nearly at the ſame time, for by this means the colours will appear in them all equally freſh and lively: whereas in thoſe which do not blow ſome of their pipps till others have paſſed their prime, the whole appearance of the truſs falls much ſhort of that beauty, which would otherwiſe be ſeen.

Third. Of the main ſtalk.

17. The ſtalk which ſupports the truſs ought to be ſtrait and ſufficiently ſtrong to bear it up without drooping.

18. It is an excellence to be lofty as well as erect, for thereby the truſs, and conſequently the whole flower, will make a more ſtately and grand appearance.

To theſe eighteen properties which complete the floriſt's idea of a beautiful Auricula, there ought to be added the graceful diſplay of a good plant, covering the top of a flower-pot with freſh verdure, or foliage of luxurious growth, and an agreeable green colour, ſuch as is expreſſive of the moſt perfect health and vigour: this vaſtly enriches the whole view of the flower and plant, taken together. Moreover, though every Auricula that has the above-mentioned properties, cannot fail pleaſing the moſt curious and critical floriſts, yet as upon one hand an Auricula may be ſomewhat deficient in ſeveral particulars of ſmall conſideration, and yet be juſtly eſteemed a fine and valuable flower: ſo on the other hand it will be a farther addition to the excellence of an Auricula which has all the properties, that it naturally ſtands long in bloom, and wears its colours, without fading or alteration; and alſo when the flower begins to decay, if the colours fade equally, ſlowly, and gradually, the floriſts think it an addition to its character, and is by them termed dying well.

The Auricula is propagated both from ſeeds and ſlips. The ſeed ſhould be ſaved from the fineſt flowers, which ſhould be marked for this purpoſe when they are in full bloom.

Chuſe for this purpoſe a large flower, and ſuch as blows regular and perfectly flat; let the colours be lively, with a large and bright eye. The ſtalk ſhould be tall and ſtrait, with ſtrength in proportion.

Having marked the flowers, let the pots be immediately removed off the ſtage, and plunge them in a border, where the plants can enjoy the morning ſun freely, till about ten or eleven o'clock, but not longer.

Water them often in dry weather, and ſuffer no weeds to grow in the pots, or near them; likewiſe take care that they are at no time too much ſhaded with any large growing plants, but let them enjoy the free air, and the benefit of the ſhowers of rain.

The ſeed will be ripe in the end of June, and in July, when you muſt gather the ſeed pods according as they ripen, otherwiſe, they will ſoon ſcatter on the ground.

The beſt ſoil for ſowing theſe ſeeds is in good freſh earth from a common, rather light than otherwiſe, mixed with rotten dung and leaves, which ſhould be well mixed together, laid in a heap for ſome time, and often turned. With this compoſt the pots, or boxes, ſhould be filled, and the ſeeds ſown pretty thick on the ſurface, and covered about half an inch thick with the ſame mould.

The boxes, or pots, muſt then be ſet where only the morning ſun comes, ſtand there till the end of the next month, and then be removed where they can have the full ſun.

The ſeed will ſcarcely grow before the ſpring, but the plants will come up earlier and ſtronger than thoſe ſown at that ſeaſon.

As ſoon as the plants appear they will not be able to bear the full ſun, when it is powerful: they muſt, therefore be ſhaded from it occaſionally; the boxes wherein they are growing ſhould be removed to the ſhade, but the place ſhould be open to the morning ſun, till about nine or ten o'clock, but ſhaded the reſt of the day, and watered often in dry weather.

About July they muſt be tranſplanted from the ſeed-bed, into a ſpot defended from the mid-day ſun, the ground being firſt neatly dug, and the ſurface raked very even.

Let them be planted about four inches aſunder each way, obſerving to cloſe the earth very well about them, and let them be gently watered. They muſt, after this, be kept very clear from weeds, and in dry weather, moderately watered every two or three days, during the ſummer ſeaſon.

The next year many of them will begin to flower, you ſhould therefore, examine all the plants, and ſuch as produce the largeſt flowers, and have good colours, ſhould be marked and planted in pots for ſtage flowers; but all the plain flowers, that is, thoſe which have but one colour, ſhould be planted in borders, among other low flowering plants, and thoſe which are planted in pots, ſhould in the following year's bloom be again examined, when you will be better able to judge of their properties: and thoſe of them that do not merit a place among ſtage flowers, ſhould be tranſplanted into the common borders, for none but ſuch as are real good flowers, ſhould be placed on the ſtage.

Auriculas are alſo increaſed by the ſlips, or ſuckers, which riſe from the old plants: and the time to take them off, and plant them is in June; they will now readily take root, and as the plants are now in bloom, you have the opportunity of ſeeing the flowers, and taking the ſlips from thoſe you like beſt. Let each ſlip be planted ſingly, in a ſmall pot of freſh earth, and give them a little water as ſoon as they are planted, then ſet the pots in a ſhady place; the plants will take root freely, with the aſſiſtance of a moderate watering, now and then.

The propagating theſe plants by ſlips, is the only method to encreaſe the ſort you like: for the ſlip will produce exactly the ſame flower as the plant from which it was taken, which is not ſo with the ſeedling plants: for the principal intention of the floriſts, by raiſing them from ſeed, is to procure new ſorts; for there are always varieties obtained from ſeed, although there may not be one like the flower from whence the ſeed was ſaved; and, perhaps, out of ſome hundreds, very few that have the properties requiſite for a real good flower; but thoſe that are curious in flowers, are well ſatisfied with the acquiſition of one or two new flowers, that have all the due properties ; and as above hinted when any new flower is thus obtained, the next care is to propagate it by the ſlips or ſuckers which ariſe from the ſide of the main plant.

The pots containing the fineſt Auricula plants muſt be well protected from heavy rains, ſnow, and ſharp froſts, during the winter, otherwiſe the plants will be greatly injured.

They ſhould therefore be always removed about the end of October or beginning of November, and placed in frames, or in a bed arched over with hoops in a warm part of the garden, where they can be occaſionally covered if the weather is unfavourable ; but let the covers be conſtantly taken off when the weather is mild and dry.

Towards the end of January, if the weather be mild, it will be neceſſary to add freſh earth to theſe plants.

Let ſome proper compoſt be prepared for this purpoſe. Clear the plants from dead leaves, and take the old earth away from the top of the pots, as low as you conveniently can without diſturbing their roots ; fill up the pots with the earth that you have prepared, then return them to the place intended for ſheltering them. Let them always be ſecured from froſts and exceſſive rains ; but a moderate ſhower will be ſerviceable to them.

As the ſpring advances, the choice kinds of Auriculas in pots muſt be treated with more than ordinary care, for their flower buds will begin to appear in February ; the plants therefore ſhould be defended from froſt cold heavy rains. This muſt be done by a covering of mats, canvas, or glaſs ; but every mild and dry day, the plants muſt be entirely uncovered. As the ſpring advances the plants ſhould not be debarred from a warm and moderate ſhower of rain now and then, if ſuch ſhould happen, for it will be of great ſervice to them. When the weather is dry let them be refreſhed moderately with water at times, juſt enough to keep the earth a little moiſt about their roots. At the ſame time remember to keep the pots free from weeds, and the plants from decayed leaves.

In April the Auriculas will begin to blow ; care muſt therefore be taken to protect the curious ſorts from rain and wind, and alſo from too much ſun.

The meally duſt, which covers theſe flowers, compoſe a principal part of their beauty ; this muſt therefore be preſerved upon them ; the leaſt ſhower of rain would eaſily waſh it off ; it is alſo liable to be blown off by the winds ; and the ſun, if permitted to ſhine freely on the flowers, would occaſion them ſoon to fade. Let the pots therefore, according as the flowers open, be immediately removed and placed on the ſhelves of the Auricula ſtage, or where the flowers may be protected occaſionally from ſuch weather as would deface their bloom.

The ſtand or ſtage ſhould have from three to ſix ranges of ſhelves, about ſix inches broad, riſing theatrically one above another, from the front ; the back being generally placed againſt a wall, pale, or other building ; it muſt be conſtantly covered at top, but the front and two ends muſt only be covered occaſionally, there ſhould be ſome canvas or mats faſtened to the top of the front and ends, by way of curtain ; this ſhould be ſo contrived that it may be readily let down and drawn up at pleaſure.

When the air is very ſharp, or high winds, or driving rains, the curtain muſt be let down at ſuch times to ſhelter the flowers ; but when the weather is mild and calm, let the front be conſtantly open.

The curtain ſhould be alſo uſed occaſionally to ſhade the flowers from the ſun, when it ſhines fiercely. Obſerve in this caſe, to let the curtain down but juſt as low as neceſſary to ſhade the plants, and never let the curtain remain longer down than is abſolutely neceſſary for the defence of the flowers.

When the pots are placed on the ſtand, let them be examined at leaſt once every day, to ſee where water is wanted ; and let ſuch pots as ſtand in need of it be immediately ſupplied. In doing this let no water fall on the flowers, for that would alſo waſh off the duſt. Let the water be always given in moderate quantities.

By thus placing your Auricula pots on a covered ſtage, it not only preſerves the flowers much longer in beauty, but you alſo more readily view them, and they ſhew themſelves to much greater advantage than when placed on the ground.

Keep the ſurface of the pots perfectly neat, free from weeds, and every ſort of litter ; ſuffer no decayed leaves to remain on the plants, but let ſuch, as ſoon as they appear, be taken off.

In Auguſt, the plants ſhould be ſhifted into freſh earth, prepared as above directed, and broken very ſmall between the hands.

The compoſt being ready, take up the pots one by one, and pick off all decayed leaves from the plants ; then turn the plants out of the pots, take moſt of the earth from its roots, and let all the fibres be trimmed : this done, fill the pot nearly with the compoſt, immediately ſet the plant in the middle, cloſe the earth well about it, and fill up the pot properly with more compoſt.

When the whole are thus planted, let them be moderately watered, and the pot ſet in a ſhady place, or the plants ſhaded occaſionally with mats, and watered occaſionally in dry weather till they have taken root. But if much rain ſhould fall, the plants muſt be defended from it; for much wet is deſtructive to Auricula plants.

In order therefore to protect the choicer kinds of theſe plants in ſuch weather, let the pots be placed cloſe together, in a bed arched over with hoops ; and when the weather is exceſſive wet, let ſome large thick mats or canvas be drawn over the hoops to defend the plants ; or the pots may be ſet cloſe together in a garden frame, and the glaſſes may be put on as occaſion requires.

The above is a much better and more certain method, of protecting the plants from wet, than to lay the pots down on one ſide. But where there are no ſuch conveniencies, it will, in that caſe, be proper to lay the pots down to prevent their receiving too much moiſture which would rot the plants.

When the bloom is nearly over, let the pots, according as the flowers fade, be immediately moved off the ſtand or ſtage, and placed upon a clean level ſpot, where the plants can enjoy the morning ſun freely, till nine or ten o'clock but not longer ; there let them remain till the latter end of Auguſt. Keep the pots, and the ground where they ſtand, perfectly clear from weeds ; and when decayed leaves appear on the plants, let them be immediately taken off, and, in dry weather, let the plants be often refreſhed with water.

When the cold weather comes on, and you have not the convenience of a garden frame, let the pots be ſet cloſe together, in a bed about four feet wide : and if the earth be dry, plunge them ; then place hoops acroſs, and in bad weather let mats be drawn over them. But in dry and open weather, let the plants be conſtantly uncovered, even in the night.

AXIS *of a Plant*, the term of botaniſts for that long, round, ſmooth cylinder, placed in the centre of the juli, or cat's tail, on nut trees, &c. about which the male organs of generation are diſpoſed.

B.

BACCIFEROUS, a term applied to trees, ſhrubs, or plants, that produce berries.

BALM *of Gilead*, one of the ſpecies of *Dracocephalum*, or *Dragon's-head*. See the article DRAGON'S-HEAD.

This plant is of the perennial kind, and much eſteemed for the agreeable ſcent of its leaves.

In April ſow the ſeeds on a common hot-bed ; they may be ſown in a bed, or border of natural earth, but the former is the moſt adviſeable method, as the plants thus raiſed will be forwarded greatly in the ſpring, and flower ſooner by three weeks, This plant may likewiſe be propagated by cutting off the ſtalks. If there have been plants preſerved in frames or the green-houſe all winter, ſome of them will have ſtalks proper for this operation in April, or, if not, they will have produced ſtrong ones by the middle of June; cut ſome of the ſtrongeſt off, and divide them into lengths of ſix inches; plant theſe in ſhady borders, four or five inches diſtant from each other; they will readily take root, and be fit to tranſplant in two months.

If you intend to preſerve the plants through winter, they muſt be placed either in the green-houſe, or a garden frame, and defended with glaſſes and other coverings in ſevere weather. Thus protected they will continue green all the winter.

BALSAM, or *Female Balſamine*, a ſpecies of a genus of plants called Impatrins, ranged by Linnæus among the *ſyngeneſia monogynia*.

This plant is a native of India, and has ſeveral varieties, as the white, the red, and the ſtriped flowered, alſo the ſingle and double flowering; theſe ſorts are ſo hardy as to riſe in the full ground, and when the ſeeds ſcatter, the plants will come up the following ſpring; but theſe do not flower ſo early as thoſe raiſed upon a hot bed; but they are generally ſtronger plants, and continue in flower longer than the others, conſequently they are an ornament to the garden in autumn, when there is a ſcarcity of flowers.

The flowers ſpring from the joints of the ſtems, and are ſuſtained upon ſlender footſtalks, about an inch long, each ſuſtaining a ſingle flower, which is compoſed of five large unequal petals; they have a long tail at their baſe, ſomewhat crooked; theſe are ſucceeded by an unilocular capſule, opening with an elaſtic force in five valves: the ſeeds it contains are fixed to the axis, or placenta.

The moſt beautiful and valuable kind are thoſe which produce double flowers, of which there are three ſorts, finely ſtriped with pink, ſcarlet, or purple, ſo as to appear almoſt as beautiful as a Carnation, and are highly valued by the curious. Theſe plants are raiſed on hot-beds in the ſpring, and managed nearly as the Amaranthus. See the article AMARANTHUS.

As theſe flowers are apt to degenerate, ſo as in a few years to become ſingle; the beſt method to preſerve their plentitude of petals, is by changing ſeeds with ſome perſon who lives at a diſtance, and can be depended upon for his care in the choice of bloſſoms for ſeed; for all ſingle flowers ſhould be plucked off as ſoon as they open, as well as all the double flowers, which are but of one colour, preſerving thoſe only which are double and ſtriped.

BANE-BERRIES, *Herb-Chriſtopher*, *Actæa*, a genus of plants placed by Linnæus among the *polyandria monogynia*, and of which there are three ſpecies; 1. Bane-Berries with ovated cluſters, and baccated fruit being the common Herb Chriſtopher, or Bane-Berries. 2. Bane-Berries with long cluſters, and an one capſuled fruit. 3. Bane-Berries with paniculated cluſters, and a four capſuled fruit.

This plant has perennial roots; the firſt ſpecies has two varieties, and is a native of England, and many other countries, both in Europe and America. It is propagated by ſeeds, which muſt be ſown ſoon after they are ripe, on a ſhady border. The autumn after the plants are come up, you muſt tranſplant them to the place in which they are deſigned to remain. The ſecond ſpecies grows naturally in Florida, Virginia, and Canada, and may be propagated by ſeeds, in the manner of the firſt ſort, or by parting the roots in autumn, when the leaves begin to decay. It will require a moiſt ſoil, and a ſhady ſituation. The third ſort grows naturally in Siberia, and may be propagated by ſeeds in the manner directed for the firſt ſpecies.

BARBADOES *Flower Fence*, or, *Spaniſh Carnations*, *Poinciana*, a genus of plants of which we have but one ſpecies in the Engliſh gardens, called Barbadoes Flower Fence, with double ſpines, and ranged by Linnæus among the *Decandria monogynia*.

There are two varieties of the Barbadoes Flower Fence, which were diſcovered by the late Dr. Houſtoun, in the Spaniſh Weſt Indies. One of theſe hath a red, and the other a yellow flower, but as there appears to be no other difference in the plant from the common ſort, they muſt be ſuppoſed only accidental variations, which have ariſen from ſeeds.

This plant grows naturally in both Indies; it is planted in hedges, to divide the lands in Barbadoes, from whence it had the title of Flower Fence; it is alſo called Spaniſh Carnation by ſome of the inhabitants of the Britiſh iſlands. It riſes with a ſtraight ſtalk, from ten to fifteen feet high, covered with a ſmooth grey bark, and is ſometimes as thick as the ſmall of a man's leg, dividing into ſeveral ſpreading branches at the top, which are armed at each joint with two ſhort, ſtrong, crooked ſpines, and are garniſhed with decompound winged leaves, each leaf being compoſed of ſix or eight pair of ſimple winged leaves, the lower pair being compoſed of four or five pair of lobes, the others gradually increaſing their number toward the top, where they decreaſe again, and are ſmaller; the lobes are of a light green colour, and when bruiſed, emit a ſtrong odour.

The branches are terminated by looſe ſpikes of flowers, which are ſometimes formed into a kind of pyramid, and at others, they are diſpoſed more in form of an umbel. The footſtalk of each flower is three inches long; the flower is compoſed of five petals, which are round at the top, but are contracted to narrow tails at their baſe; they ſpread open, and are beautifully variegated with a deep red or orange colour, yellow, and ſome ſpots of green; they have a very agreeable ſcent. In the center of the flower is ſituated a ſlender ſtyle, above three inches long, upon which the germen ſits, and is accompanied by ten ſtamina, nearly of the ſame length with the ſtyle, terminated by oblong ſummits. After the flower is paſt, the germen becomes a broad flat pod, about three inches long, divided into three or four cells, by tranſverſe partitions, each including one flat irregular ſeed. The leaves of this plant are uſed inſtead of Sena in the Weſt Indies, to purge, and from thence the plant is by ſome perſons entitled Sena.

The ſeeds of this plant are annually brought over in plenty from the Weſt Indies, which, if ſown upon a hot-bed, will riſe eaſily; when the plants are come up, they ſhould be tranſplanted each into a ſmall pot, and plunged into a hot-bed of tanners bark, obſerving to ſhade them from the ſun, till they have taken root; after which they muſt have air in proportion to the warmth of the ſeaſon, and be frequently refreſhed with water. When the plants have filled the pots with their roots, they ſhould be taken out, and placed in larger ones, that they may have room to grow. If care be taken to water and ſhift them as often as it is neceſſary, they will grow to be three feet high the firſt ſeaſon. At Michaelmas the pots ſhould be plunged into a freſh hot-bed of tanners bark in the ſtove, which ſhould be kept to the Pine-apple heat, marked on the botanical thermometers, and frequently refreſhed with water, but they ſhould not have too much water in winter. The earth, which theſe plants ſhould be planted in, muſt be freſh, light, and ſandy (but not over rich) in which they will ſtand the winter better than in a ſtronger ſoil.

Theſe plants muſt conſtantly remain in the bark ſtove, where in warm weather they ſhould have a large ſhare of air, but they muſt not be expoſed to cold; if damp ſeizes their top, it very often kills the plants, or at leaſt occaſions the loſs of their heads. With proper management they will grow much taller here than they uſually do in Barbadoes, but their ſtems will not be larger than a man's finger, which is occaſioned by their being drawn up by the glaſſes of the ſtove.

BARLEY, *Hordeum*, a genus of plants claſſed by Linnæus among the *triandria dyginia*, and of which there are ſeveral ſpecies, but as it is cultivated only in fields, we ſhall make no farther mention of it in this work.

BARK, in the anatomy of plants, is the exterior part of trees correſponding to the ſkin of an animal.

The bark of plants is two fold; the outer, liber, and the inner, alburnum. The outer Bark is dry, and in ſome trees rough. The inner is probably a ſuperadded new coat of that year's growth, between the woody and barky nature. The Bark of the trunk conſiſts of ſkin, a cortical body or parenchyma, and ſome fibres of the woody part intermixed. The ſkin is the production of the cuticle in the ſeed, and the cortical body, an augmentation of the parenchyma of the plume. The ſkin is originally compoſed of ſmall veſicles or bladders cluſtered together, which, as the plant grows, dry up and diſappear. The body of the Bark conſiſts of parenchyma and veſſels, the former compoſed like the ſkin, of cluſters and bladders. The veſſels are of divers kinds, rorifrous, lymphæducts, and reſiniferous. The Bark of roots is ſometimes yellow, as in Dock; ſometimes red, as in Biſtort; but oftener white. It is derived from the ſeed itſelf, being only the extenſion of the parenchyma of the radicle. It is variouſly ſized, being ſometimes very thin, as in the Jeruſalem Artichoke, and in moſt trees; ſometimes it is thicker, and makes the greater part of the ſubſtance of the root, as in Aſparagus and Dandelion. In Beet Root the Bark ſcarce exceeds a thick ſkin, whereas in a Carrot, it is half the ſemidiameter of the root, being in ſome places above an inch over. This too is found common to the generality of roots, that their Barks are proportionably thicker at bottom than at top. The inner part of the Bark we have obſerved annually, lignifies or turns to wood. The Bark of a tree is found each year to divide and diſtribute itſelf two contrary ways: the outer part gives towards the ſkin, till it becomes ſkin itſelf, and at length falls off, like the ſcales of dandriff of our body, or the exuviæ of ſerpents; while the inmoſt portion is yearly diſtributed and added to the wood. The Bark is found truly continuous to the body of a tree, as the ſkin of our body is to the fleſh; contrary to the common opinion, which imports, that the Bark only ſurrounds the tree, as a ſcabbard does a ſword, or a glove the hand; which ſeems confirmed by the eaſy ſlipping of the Bark of Willow, and moſt other trees, when full of ſap, from the wood. Their continuity is effected by means of the parenchyma, which is one entire body, running from the Bark into the wood, and thus uniting both together. The reaſon why the Bark ſlips ſo eaſily from wood is, that moſt of the parenchymous parts are young veſſels, formed every year ſucceſſively between the wood and the Bark. *Grew's Anatomy of Plants.*

That trees only live by the aſcent of the ſap in or between the Bark and the wood, and that if a circle be drawn round any tree (except, perhaps, Aſh) by inciſion to the timber, how thin ſoever the knife be, provided no part of the thickneſs of the Bark remain uncut, the tree will die from that part upwards, has been the ſtanding doctrine of naturaliſts of all ages, and is delivered for fact by Pliny, and others. Dr. Plott aſſerts this to be a popular error, from the inſtance of a large old Elm in Magdalen College grove, quite diſbarked round at moſt places two feet, at ſome four feet, from the ground, which yet grew and flouriſhed many years, as well as any tree in the grove. What is more, it was without all pith, being hollow within as a drum; and the ſame is confirmed from the hiſtory of the Elm in the Thuilleries, related by M. Parcut, which lived and put out leaves, though intirely ſtripped of Bark from top to bottom. Add, that the Plane and Cork trees diveſt themſelves yearly of all their old Bark, and acquire a new one, as ſnakes do their ſkins; and in the change from one to the other, it is evidently not by the Bark that they are nouriſhed. Some infer from hence, that the Bark never feeds the wood. Dr. Plott is more reſerved in his concluſion; arguing only, that hence it ſeems to follow, that there muſt be other veſſels beſides the ſap veſſels of the Bark, capable of the office of conveying ſap. It is probable, when the ordinary conveyance fails, ſome of the woody part, which had all once been ſap veſſels, reſumes its antient office; or as the author laſt mentioned conjectures, they ſtill ſo far retain their office of conveying ſap, as to keep a tree alive, though not to augment it; which may perhaps, be one different uſe of thoſe ſap veſſels in the wood from thoſe in the Bark, the former being ſufficient for the continuation of a tree, and the latter ſerving only for its augmentation.

Mr. Brotherton has given ſome new experiments, which ſeem to decide the controverſy, and ſhew that the Bark is not the vehicle of vegetation: he hacked a Crab-tree round, with a hatchet, ſo as, beſides cutting off the Bark, to cut pretty deep into the wood, about four inches width; yet, the ſame year it was obſerved to increaſe very conſiderably in thickneſs, above the ſaid hacking, and ſhoot, in length of wood, about one foot: the next year it alſo grew conſiderably, and ſhot in length, five inches; the third year it died to the root. The ſame was found in another tree, part of whoſe Bark was eat off by the canker: the lower part ſtood without increaſe, and by degrees the wood rotted; the upper part encreaſed to the third year, and then died. Mr. Magnol mentions an Olive-tree, from which a circular ring of Bark being cut away, the tree that year bore, above the place of inciſion, double the quantity of flowers and fruit, which it uſed to bear. M. Reneaume relates a fact near a-kin to this: in the country, about Aix and Marſeilles, when an Olive-tree grows old, and almoſt ready for felling, they have a method of making it firſt yield all the fruit which it is capable of producing, by cutting a circular ring of Bark an inch broad, from one of its young branches, and in its place putting an equal ring of Bark, taken from the branch of a young bearing Olive-tree; the effect of this engraftment is, that the branches of the old tree bear plentifully the enſuing year, and thoſe of the young one die away. From the whole, Mr. Brotherton concludes that the ſap, moſt of it, if not all, aſcends in the veſſels of the woody part, and not by the Bark, nor between the Bark and the wood.

M. Leuwenhoek, on the other hand, has given ſeveral experiments and obſervations with the microſcope, to ſhew that the Bark of trees is produced from the wood, not the wood from the Bark. In reality, if the origin and nouriſhment of the Bark came from the root, it would ſeem to follow, that the parts of the Bark near the root ſhould be found larger, and ramified into ſmaller and ſmaller, as they grow higher, as the arteries and nerves are, the farther they go from the heart and brain, whereas there is no difference between the Bark of the root and trunk. Beſides, the veſſels of the Bark of ſeveral trees, as the Birch, Cherry, Peach, &c. run not upwards, as they do in the Aſh, Oak, Elm, Nut, Apple, Pear, &c. but circularly round the ſuperficies of the tree; and all Bark, whoſe veſſels run upwards, grows thicker as the tree increaſes, the outſide cracking, grows dead, and ſticks to the young Bark underneath, which is the only living part of the Bark. The contrary is evident in thoſe Barks, the veſſels of which run round, the tree increaſes, the veſſels not being able to ſtretch or ſeparate from each other, muſt neceſſarily break aſunder; ſo that the old Bark is eaſily ſeparated, and falls off from the new. Hence it is that ſuch trees have always a very thin Bark, as is moſt evident in the Birch-tree.

Yet M. de Reneaume defended the antient ſyſtem of the uſe of the Bark, and ſhewed that moſt of the inſtances above alledged, are conſiſtent therewith. The parts of a tree, ſeparated from the whole, he obſerves, may carry with them a ſtock of nutritious juice, whereby they vegetate: thus the branches of Elder, Willows, &c. being cut off, do, nevertheleſs, produce leaves and young branches, even without ſetting them in the ground; and pieces of ſeemingly dry wood, have been ſometimes known to do the like; how much more then may branches, which ſtill grow on the tree, and which of conſequence can never be ſo entirely defrauded of new ſap, continue to vegetate; for though none be ſuppoſed to raiſe by the Bark, which is entirely cut away, and which was the part that before furniſhed the greateſt quantity, they may ſtill receive ſome by the woody part, and more eſpecially by the alburnum, or inner rind, which is the ſofteſt part, as well as the neweſt, and that likeſt Bark. Thus we may ſuppoſe it to have been, that the Elm in the Thuilleries continued to grow without

Bark a whole ſummer, by virtue of the ſtock of juice it had already imbibed. For the Olive-tree mentioned by M. Magnol, it was the better enabled to ſubſiſt without Bark, as it is of an oily nature, and that even its wood is ſaturated with that juice, which it is known will keep long, and ſpend itſelf ſlowly. The reaſon of its increaſed fertility ſeems to be, that the canals of the young Bark grafted on it, being more free and open than thoſe of old ones, perform their filtrations better. As to the Elm of Luxemburgh, cited by the ſame M. Parcut, whoſe upper parts appeared ſtripped of all their Bark, almoſt to the ground, upon a nearer examination, it was found to have fibres of the inner Bark or liber ſtill remaining, which had a communication with the Bark, which communicated with the branches; and it is probable, by theſe fibres, that the upper branches of the tree were ſtill fed; theſe fibres, by length of time, and the plenty of juice they had tranſmitted, were hardened, and began to form a new ligneous ſubſtance; other younger fibres of the ſame liber, and which has probably been formed ſince the barking of the tree, began to conſtitute a new alburnum, which began likewiſe to be covered with a new Bark, or ſkin. From this inſtance M. Reneaume concludes that it is of the Bark the alburnum is formed; and as the alburnum is the wood laſt formed, the whole wood is of conſequence formed of the Bark or liber. The manner of this converſion is deſcribed by him.

While the alburnum retains any degree of its ſoftneſs, and ſtill partakes of its barky nature, it may preſerve the vegetation for ſome time; but when it is become abſolutely wood, it can no longer contribute thereto. The growth of the young branches is moſt quick, and the only that reaches to the flowers and the fruit, as being little other than Bark itſelf. It ſeems now certain, from the experiments of M. de Buffon, that trees ſtripped of their Bark the whole length of their ſtems, die in about three or four years.

BAROMETER, an inſtrument for eſtimating the minute variations of the weight, or preſſure of the incumbent air; it is a long tube of glaſs, hermetically ſealed at one end, and being filled with quickſilver, is inverted, ſo as to have the open end of it immerſed, or dipped in ſtagnant quickſilver, contained in a large glaſs under it, which large glaſs being expoſed to the preſſure of the outward air (after ſuch immerſion) and the quickſilver in the tube ſuffered to run as much as it will into the ſtagnant quickſilver, in which that mouth, or open end, is immerſed, there is wont to remain a quantity of quickſilver ſuſpended in the tube, about twenty-eight, twenty-nine, or thirty inches high, meaſuring from the ſurface of the ſtagnant quickſilver perpendicularly: but more or leſs, within ſuch limits, according as the weight or preſſure of the air, incumbent on the external ſtagnant quickſilver expoſed to it, is more or leſs, leaving the upper part of the tube void, or at leaſt empty of common air.

Barometers will be of particular uſe to gardeners and farmers, by aſſiſting them to foretel the great alterations of the weather a day or two before they happen, which is frequently of great ſervice, particularly to the farmer, who may begin to mow his graſs, when he finds there is a proſpect of fair weather, or poſtpone it a few days, till he foreſees a likelihood of ſuch; the ſame alſo may be of great uſe in reaping his corn, as alſo in ſowing his grain, and moſt of his other buſineſs; therefore, the uſe of this inſtrument ſhould be more generally known by the practical farmer and gardener.

The rules and obſervations made for knowing the weather, by the various riſing and falling of the weather glaſs, or Barometer, are theſe: 1. That the leaſt alterations in the riſe and fall of the mercury in the tube, ſhould be regarded, in order for the right finding the weather by it. 2. The riſing of the mercury preſages fair weather, as the falling indicates the contrary, viz. rain, ſnow, high winds, and ſtorms. 3. In ſummer, if the quickſilver be up about fair, and the weather very hot four or five days, then we may expect black clouds to riſe, and a briſk gale, with thunder, and a ſhower or two which will ſoon go off. 4. In winter, the riſing preſages froſty weather, if the mercury falls three or or four diviſions, there will certainly follow a thaw; but in a continued froſt if the mercury riſes, it will certainly ſnow. 5. When foul weather happens ſoon after the falling of the mercury or quickſilver we are to expect but little of it; and judge the ſame with reſpect to fair weather, ſhortly after the mercury has riſen in the like manner. 6, In foul weather, when the mercury riſes much and ſo continues two or three days before the foul weather is over then may we expect a continuance of fair weather to follow. 7. In fair weather when the mercury falls much, and continues for two or three days before the rain comes, then we may expect a great deal of wet, and high winds. 8. An unſettled ſtate of the mercury denotes uncertain and changeable weather as ſun-ſhine, ſome black clouds, with frequent ſhowers. 9. If the mercury be up at fair and does not fall, and it happen to rain, then we may expect but little of it. 10. If the mercury be down at rain, and does not riſe, and the weather proves fair, then we may expect it not to continue. 11. We are not ſtrictly to mind the words that are engraven on the plates, though for the moſt part the weather will agree with them; for if the mercury ſtands at much rain, and does riſe up to changeable, it preſages fair weather, although it is not to continue as it would have done if the mercury was higher; and ſo on the contrary.

BASIL, *Ocymum*, a genus of plants ranged by Linnæus among the *didynamia gymnoſpermia*, and of which there are five ſpecies. 1. Baſil with fruitful ſpikes of flowers, on the ſides of an erect ſtalk. 2. Baſil with oval ſmooth leaves, and hairy cups. 3. Baſil with oval entire leaves. 4. Baſil with oval, oblong, ſawed leaves, and heart-ſhaped, concave, reflexed bractea. 5. Baſil with ſpear-ſhaped, ſawed leaves. Theſe are annual plants, and natives of India. One of the ſpecies called Buſh-baſil, has a fibrous, ſmall root, with a ſtalk about ſix inches high, ſpreading out into branches that are woody, forming an orbicular head; the leaves are like thoſe of Marjoram, of a purpliſh caſt, ſtanding oppoſite on ſhort footſtalks; the flowers are produced in whorles toward the top of the branches, of a white colour and purpliſh caſt; they conſiſt of labiated petals, whoſe creſt, or upper-lip is erect, roundiſh, notched, and larger than the beard of the lower lip, and cut into five parts; the calix is cut on the edges into four parts, the uppermoſt of which is hollow like a ſpoon, and the piſtil which riſes out of it is attended with four embryoes, which afterwards become as many ſeeds. This and the common ſort are both propagated by ſeeds, which ſhould be ſown in the beginning of April on moderate hot-beds; and when the plants are up, they ſhould be removed to another, obſerving to ſhade them till they have taken root: in May they ſhould be taken up with a ball of earth to the roots, and tranſplanted either in pots or borders. Theſe plants have a ſtrong ſcent like cloves, too powerful for moſt perſons, but to ſome they are very agreeable.

BASON, a cavity dug in the ground of a round, oval, ſquare, or other figure, lined or laid with ſtone, flint, or flags bound with cement or lead, and bordered with turf, marble, or the like, ſerving to receive the water of a jet d'eau, or to ſupply the occaſions of the gardener. A baſon is generally ſurrounded with a baluſtrade of ſtone, marble, braſs, or the like; and ſome baſons, whoſe borders being of marble or other ſtone, have a trench cut in them, from whence, at certain diſtances, ſprings out a thread of water, which lines the trench, and forms a kind of nape or girdle, around the baluſtrade. Baſons in gardens are either for ornament or uſe. When there is a jet d'eau in the middle, the baſon muſt be always ſo proportioned to the height it throws the water, as to be capable of receiving it when blown about by the winds, that it may not damage the walks. The uſual depth of baſons is from two to three feet, this being ſufficient to ſecure the bottom of the baſons from froſt. If they are intended to hold fiſh, they ſhould be four or five feet deep. Baſons are made either with clay, cement, or lead; but they are uſually made with clay. In the making them this way, the diameter muſt be made four feet longer on each ſide than the baſon is to be. This will be taken up by the walls and clay. For this reaſon it muſt be dug two feet deeper than the intended depth of the water, for it muſt be laid over eighteen inches thick with clay, and ſix inches with gravel and paving. The wall ſhould be made with ſhards, rubbiſh or flints, with the natural earth for mortar; work the clay well, and tread it firmly down with the feet.

When they are made with cement, allow one foot nine inches every way for the work; the banks muſt be cut perpendicularly, and a wall of maſonry raiſed a foot thick, made of pebble ſtones, laid in mortar of lime and ſand: the bottom muſt then be covered to the ſame thickneſs; and the ſolid lining of the cement is to be backed up againſt the walls, and over the bottom. This is to be made of ſmall flints in beds of mortar made of lime and cement. When this ſolid is eight inches thick, it muſt be plaſtered over the whole ſurface with cement well ſifted before it is mixed with the lime; and with this it ſhould be wrought over ſmooth with a trowel. The proportion of this cement ſhould be two thirds of the cement or powdered tile to one third of lime; and this cement has the property of hardening ſo under water, that it will become like ſtone, and will not be ſubject to decay for a long time. After the finiſhing, the baſon muſt for four or five days be anointed over with oil or bullock's blood, to keep it from cracking in the drying; and after this the water ſhould be let in. The leaded baſons are made with walls a foot thick, and a bottom of half a foot. This muſt be of rubble ſtones cemented with plaſter; for the lime would injure and eat the lead. The ſheets of lead are to be ſpread over theſe walls and bottoms, and ſeamed with ſolder. Theſe baſons are but little in uſe, from the expence of making them, and the danger of the lead's being ſtolen. The waſte pipes of fountains ought always to be made large enough, for fear of choaking. When the waſte water is to be carried off into common ſewers, it may be carried away in drains, or earthen pipes; but when it is to ſerve for baſons that lie below it, is to be conveyed in leaden ones.

BATCHELOR's BUTTON, a ſpecies of the Lychnis or Campion, with male and female flowers on different plants, and ranged by Linnæus among the *decandria pentagynia.*

They are perennial plants and much cultivated in our gardens for the ſake of their flowers; they are hardy and eaſily propagated either by parting the roots, or by ſeeds.

The roots ſhould be parted in the latter end of Auguſt, or beginning of September, and planted in a light, dry ſoil.

If they are to be raiſed from ſeed, they ſhould be ſown in March upon a bed of light freſh earth, and in May the young plants ſhould be removed into another bed of the like earth, at about ſix inches diſtance from each other, and watered till they have taken root, after which they will require no farther care, but to be kept clear from weeds; and at the end of September following they may be removed for the laſt time, into the borders where they are to ſtand, and they will flower in the June and July following; when, if they are ſuffered to ripen their ſeeds, they will ſow themſelves and come up without any farther trouble.

BAUM, *Meliſſa*, a genus of plants, ranged by Linnæus, among the *didynamia gymnoſpermia*, and of which there are ſeven ſpecies: 1. Meliſſa, with whorled bunches of flowers, proceeding from the ſides of the ſtalks, and ſingle foot-ſtalks, being the garden, or common Baum. 2. Meliſſa, with foot ſtalks ariſing from the wings of the ſtalk, which are divided by pairs, and are of the length of the flowers. 3. Meliſſa, with foot ſtalks, ariſing from the wings of the ſtalk, which are divided by pairs, and are of the length of the leaves, being the common officinal Calaminth of the Germans. 4. Meliſſa, with foot-ſtalks, which are divided by pairs, and are longer than the leaves, and a declining ſtalk 5. Meliſſa, with ſpikes of flowers, terminating the ſtalks, and growing upon ſhort, ſingle foot-ſtalks. 6. Shrubby Meliſſa, with ſlender twig branches, and leaves which are woolly on their under-ſide. 7. Meliſſa, with glomerated whorls of flowers, of the length of the ſtalk, and woolly leaves.

The firſt ſpecies grows naturally on the hills near Geneva, and in ſome parts of Italy. It has a perennial root, and an annual ſtalk, and is propagated by parting of the roots, which ſhould be divided into ſmall pieces, with three or four buds to each, and planted in October, two feet apart, in beds of common garden earth; the only culture it requires, is to keep it clean from weeds, and to cut off the decayed ſtalks in autumn, ſtirring the ground between the plants. The ſecond ſpecies is a perennial plant, and a native of Tuſcany, and is propagated in the ſame manner with the firſt ſpecies.

The third ſort is alſo perennial; it grows naturally in Italy, Spain, France, and England, and is ſeldom admitted into gardens, though it may be propagated in the ſame way as the common Baum. The fourth kind grows wild in many parts of this country. The fifth is a native of France, and is eaſily propagated, by ſuffering the ſeeds to ſcatter. The ſixth ſpecies is a biennial plant, and a native of Spain: it may be propagated by cuttings, which if planted in the ſummer, and ſhaded from the ſun, will take root very freely. The ſeventh ſpecies is an annual plant, which may be propagated, by ſowing the ſeeds upon a bed of common garden earth.

BAUM *of Gilead.* See BALM *of Gilead.*

BAY-PLUM, *Guayava.* See the article GUAYAVA.

BAY-TREE, *Laurus*, a genus of plants ranged by Linnæus among the *enneandria monogynia*, and of which there are eleven ſpecies. 1. Bay-tree, with oval oblong leaves, marked with three veins united together, or the Cinnamon tree. 2. Bay-tree, with ſpear-ſhaped leaves, with three veins, which unite above the baſe, called the Caſſia. 3. Bay-tree with oval, ſpear-ſhaped leaves, marked with three veins, which unite above the baſe, or the Camphire tree. 4. Bay-tree, with ever-green, ſpear-ſhaped, veined leaves, and flowers cut into four points, which are male and female, and is the common Bay-tree. 5. Bay-tree with evergreen, veined, ſpear-ſhaped, plain leaves, branches with tubercles and cicatrices, and flowers growing in bunches. 6. Bay-tree with evergreen, coriaceous, oval leaves, tranſverſely veined, and flowers growing in bunches. 7. Bay-tree with ſpear-ſhaped leaves, tranſverſely veined, with the cups of the fruit baccated. 8. Bay-tree with oblong, acute, pointed, veined, annual leaves, and winged branches. 9. Bay-tree, veined, acute, oval, entire, annual leaves, or the Benjamin-tree. 10. Bay-tree with entire leaves, furniſhed with three lobes, or the Saſſafras tree. 11. Bay-tree with veined, oval, obtuſe leaves.

The firſt three ſpecies are natives of the Eaſt-Indies; and are too tender to thrive in the open air in this country; they are beſt propagated by ſowing the berries in pots and plunging them in a moderate hot-bed: they ſhould be inured to the open air in June, where they may remain till autumn. The common Bay-tree is a native of Greece and Italy. It thrives here in the open air, and is ſeldom hurt, except in very ſevere winters; it will make a variety in all ever-green plantations; and as it will grow under the ſhade of other trees, where they are not too cloſe, it is very proper to be planted in the borders of woods, where it will have a very good effect in winter; it may be propagated by layers, but the more common method of propagation is by ſuckers in nurſery beds, ſix inches aſunder each way; theſe in two years time, will be fit to be planted where they are deſigned to remain. The fifth ſpecies is a native of Virginia and is kept here in pots and tubs, and is propagated by layers, or by ſowing the ſeeds, and ſhould be treated like the firſt three ſorts. The ſixth ſpecies is a native of ſouth America. The ſeventh and eighth grow in Carolina and Virginia. The ninth and tenth grow alſo in North America, and are propagated by ſowing of the berries, or by layers; but theſe plants do not produce ſeeds in England. The eleventh ſpecies is a native of Jamaica, Barbadoes, and Carolina, and will not bear the open air in this country.

BEAN, *Faba*, a genus of plants, placed by Linnæus among the *diadelphia decandria*, and of which there are ſeventeen ſpecies, but that moſtly cultivated here, is the Bean with an erect ſtalk, and foot-ſtalks without cirrhi.

The ſorts of Bean commonly ſown in our gardens are the ſmall Liſbon, or Mazagan, the Spaniſh, the Sandwich, and the Windſor Beans.

The firſt is the beſt known ſort of early Beans. The ſecond is a little later, but being a good bearer, is frequently planted. The third ſort comes ſoon after the Spaniſh, and being hardier than the Windſor Bean, is commonly ſown a month ſooner. The fourth is preferable to all other ſorts for the table. It is ſeldom ſown before Chriſtmas, for it will not bear the froſt like the reſt, but is generally planted for the great crop in June and July.

All early Beans ſhould be planted in October, and placed under warm walls and hedges, where there are no fruit-trees, for they would prejudice the trees greatly.

If the winter ſhould prove ſevere, the Beans muſt be covered with peaſe-haulm, fern, or ſome other light covering, obſerving to take it off when the weather is mild. We would alſo adviſe the gardener to cover the ſurface of the border with tanners bark, which will be of great ſervice in protecting the roots of the Bean from injuries they might otherwiſe receive from the froſt.

If freſh ſeeds can be obtained from abroad every two years, they will be preferable to thoſe raiſed here; for they degenerate greatly in earlineſs, if not in goodneſs.

The Sandwich Beans may be ſown the latter end of December, and the Windſor about a month after; theſe Beans muſt have an open ground. Plant them in rows, allowing two feet and a half between each row, and four inches between each ſeed. If the place is ſurrounded with hedges and walls, the diſtance muſt be greater, elſe the ſtalks will run high, and bear very little fruit.

The firſt plantation of Windſor Beans ſhould be made in the middle of January; after which a new one ſhould be made every three weeks, till the middle of May, that there may be a ſucceſſion of crops.

In the management of theſe latter crops of Beans, the principal care ſhould be to keep them clear from weeds, and other plants, which would hurt them greatly; to keep earthing them up, and when they are in bloſſom, to pinch off their tops, which, if ſuffered to grow, will draw the nouriſhment from the lower bloſſoms, and prevent the pods from ſetting, and thus the upper part of the ſtems only will be fruitful. Always make choice of moiſt, ſtrong land, for the latter crops; for if they are planted on dry ground, they ſeldom come to much, unleſs the ſummer proves wet.

Kidney BEAN, *Phaſeolus*, a genus of plants, ranged by Linnæus among the *diadelphia decandria*, and of which there are ſix ſpecies, divided into a number of varieties: 1. Kidney-Bean, with a twining ſtalk, and flowers growing in looſe ſpikes, whoſe wings are as long as the ſtandard. 2. Kidney-Bean, with a twining ſtalk, whoſe ſtandard and keel are ſpirally twiſted. 3. Kidney-Bean, with a twining ſtalk, a ſpreading ſtandard, which is twiſted backward, and narrow, cloſe pods. 4. Kidney-Bean, with a twining ſtalk, foot-ſtalks ending in flowers, growing in heads, and four cornered, cylindrical, duſt-coloured ſeeds. 5. Kidney-Bean, with a twining ſtalk, branching flowers growing by pairs, bracteæ, which are ſhorter than the empalent, and hanging pods; commonly called the Scarlet-Bean. 6. Kidney-Bean, with a twining ſtalk, flowers growing in long bunches, and ſhort, hairy pods. The firſt ſort grow naturally in Carolina; it is an annual plant. The ſtalks, like the common Kidney-Bean, twines about any ſupport; they are hairy, and riſe to the height of four of five feet; the leaves, in ſhape, reſemble thoſe of the common Kidney-Bean, but are narrower. The flowers are produced in looſe ſpikes, ſtanding upon long footſtalks; they are large, of a purple colour, turning to blue before they fade.

About the latter end of April, ſow the ſeeds on a warm border, keep it clear from weeds, and when the plants begin to run, they muſt be ſupported with ſticks, to prevent their trailing on the ground. If they are cloſe to a wall, expoſed to a good aſpect, they will ripen their ſeeds in England.

The ſecond ſort is a native of the Brazils. This is a perennial root, with twining ſtalks, which riſe to the height of twelve or fourteen feet. The leaves are ſmaller, but in ſhape reſemble thoſe of the common Kidney-Bean. The flowers are of a purple colour, and have an agreeable odour. It is propagated by ſeeds, which in the ſpring ſhould be ſown on a moderate hot-bed. When the plants appear, fill ſome pots with light earth, and carefully tranſplant them into the pots, ſet them up to the rim in a hot-bed, to facilitate their taking root; after which, inure them by degrees to the open air, into which they may be removed the beginning of July. As they advance in their growth, they ſhould be tranſplanted into larger pots, which muſt be filled up with freſh, light earth.

Variety only gives the third ſort a place in our gardens, for it boaſts no beauty; it is a native of America, and may be propagated in the ſame manner as the former ſort.

The fourth ſort comes from America; this ſhould be managed, as directed for the ſecond and third ſpecies, with this difference only, that it requires the heat of the ſtove, to preſerve it through our winters.

The fifth ſort is cultivated in our gardens chiefly for the beauty of its flowers, they are larger than thoſe of the common Kidney-Bean, and their colour is an elegant deep ſcarlet. It requires no other care in the cultivation than is beſtowed on the common ſort: only obſerve to fix tall ſtakes by them, to twine round: for they will often riſe to the height of twelve or thirteen feet.

The fifth ſort is only to be valued for the variety of its ſeeds, which are half ſcarlet, and half black; theſe are eaſily procured from America. It is therefore, not worth the gardeners while to cultivate it here.

The three ſorts which are uſually cultivated for early crops, are the liver-colour Bean, the ſmall white dwarf, and the dwarf black; theſe may be planted much nearer together than the larger growing kinds, the ſtalks are never very long, and require but little ſupport; theſe ſhould be planted on hot-beds, under frames, for an early crop in the ſpring.

The Batterſea and Canterbury Kidney-Beans are the next; theſe bear plentifully for ſome time, the former is the forwarder of the two, but the latter continues to bear much the longeſt. The ſorts to be preferred for the table, are the ſcarlet-bloſſomed Bean, already mentioned; a white Bean of the ſame ſhape and ſize with the ſcarlet, differing in no other manner from that ſpecies, than by colour; and the large Dutch Kidney-Bean, which grows as high as either of the former, and if they are not ſupported by ſtakes, their ſtalks will trail upon the ground, and be inevitably ſpoiled.

Kidney-Beans, of all kinds, are propagated by ſeeds, theſe ſhould not be ſown till the middle of April, for cold, wet weather, would rot the ſeeds; or if the plants appear, they are liable to be deſtroyed by ſharp froſts.

The beſt way to have early Kidney-Beans, where there is not the convenience of a frame, is this: the beginning of April ſow the ſeeds upon a moderate hot-bed, arch it over with hoops, and every night, and in bad weather, draw mats over them.

Let them remain in this bed till the leaves appear, then take them up carefully, and plant them in a warm border, under a wall, and, if the ſeaſon is dry, give them a gentle watering; they may afterwards be managed as if ſown at firſt in the full ground, but by following this method, the gardener will have them at leaſt a fortnight ſooner.

The manner of planting crops in the full ground, is as follows: the middle of April draw lines over the bed, which ſhould be in a warm ſituation, and a dry ſoil, at two feet and a half diſtance, drop the ſeeds about two inches aſunder, then draw the earth over them with the head of a rake, till they are covered about an inch deep. In a week or ten days after ſowing, the plants will appear, the earth ſhould be drawn cloſe about their ſtalks, as they riſe up. They will now require no farther care, than to be kept clean from weeds.

When the Beans appear, gather them twice a week, for if they are ſuffered to hang on too long, they not only grow old, and become of no value, but they weaken the plant.

The firſt crop will continue a month in good order, and to ſupply the table afterwards, there ſhould be freſh ſowings in May and June, the laſt of which will continue till the froſts deſtroy them.

Never gather from the plants which you intend to ſave ſeeds from. In autumn, when you find they are ripe, pull up the plants, and ſpread them afterwards to dry; after which threſh out the ſeed, and preſerve it in a dry place for uſe.

BEAN *Caper*, *Zygophillum*, a genus of plants, ranged by Linnæus among the *decandria monogynia*, and of which there are ſix ſpecies: 1. Bean Caper, with a five-ſided, priſmatical capſule, or the common Bean Caper. 2. Bean Caper, with the angles of the capſule, compreſſed and membraneous. 3. Bean Caper, with globular depreſſed capſules. 4. Bean Caper, with oval, acute, pointed capſules. 5. Bean Caper, with cylindrical capſules. 6. Bean Caper, with a prickly ſtalk.

The firſt ſpecies of theſe plants is perennial, and a native of Syria; it is propagated by ſeeds ſown in the ſpring, on a warm border of light earth; after the plants are come up, they muſt be kept clean from weeds, and thinned where they grow too cloſe; when their ſtalks decay in autumn, let the ſurface of the ground be covered with tan, and in froſty weather with ſtraw or peaſe-haulm. In the ſpring let the plants be taken up, and planted in a light ſoil, on a ſouth border, cloſe to a warm wall. The other five ſpecies are all natives of Africa, and are propagated either by ſeeds or cuttings; the ſeeds ſhould be ſown on a moderate hot-bed in the ſpring.

When the plants are fit to be removed, let them be tranſplanted, each into a ſmall pot, filled with light earth, and plunged in a hot-bed. Let them be kept ſhaded from the ſun, till they have taken root.

As the ſeaſon advances, they ſhould be gradually inured to bear the open air, into which they may be removed about the end of May, placing them in a warm ſituation. In autumn, let them be removed into an airy, dry glaſs-caſe. The cuttings ſhould be planted in a bed of light earth, during any of the ſummer months, covered down cloſe with bell, or hand-glaſſes, and ſhaded from the ſun till they have taken root, after which, let them be carefully tranſplanted, each into a ſmall pot, filled with light earth, and ſhould be placed in the ſhade, till they have taken root, then let them be treated like the ſeedling plants.

BEAR'S-BREECH, *Acanthus*. See the article *Acanthus*.

BEAR'S-EAR, *Auricula Urſi*. See the article *Auricula*.

BEE-FLOWER, a ſpecies of a genus of plants, called Orchis and ranged by Linnæus, among the *gynandria diandria*.

The root is compoſed of two roundiſh bulbs, white, large, juicy, and of a pleaſant, ſweetiſh taſte.

The leaves are numerous, oblong, moderately broad, of a freſh green, undivided at the edges, ribbed lengthwiſe, and pointed; they grow in a various manner, ſome obliquely, ſome flat upon the ground, and others riſing with the ſtalk, whoſe firſt ſhoot appears very ſoon after them.

The ſtalk is round, upright, and a foot in height, of a green colour, and juicy.

The leaves are few upon it, and they ſtand irregularly, they are oblong, and ribbed, as thoſe from the root.

The flowers are placed at diſtances, one above another, and they are in the higheſt degree conſpicuous. They reſemble, in form and colouring, the great dark humble Bee ſo regularly, that one ſtarts at the ſight, and cannot, without recollection, imagine that they are real flowers.

The parts are theſe: the rudiments of the ſeed-veſſel ſupport the flower naked, for there is no cup.

The petals are oblong: they are five in number, three large, and two ſmaller; and the nectarium, which forms a kind of lip, hangs down; this is the whole flower; there riſes with each an oblong, narrow, leafy film; and it is in the nectarium that we ſee the figure and colouring of the Bee; the petals are purpliſh, and have each a rib of green.

The top of the nectarium is alſo of a duſky colour, not without ſome tinge of purple; the body of it, which hangs down, is rounded, hairy, and very much of the ſhape and common colour of the body of a humble Bee, duſky and blackiſh.

The colour is of a different tinct, as ſeen in various lights, and has a velvety appearance; upon this ground colour there are diſpoſed ſeveral ſtreaks of a tawney yellow, which alſo ſhew themſelves variouſly, according to the light; and there are ſome lines of white alſo, elegantly diſpoſed, principally on the under part, and toward the head, in the upper.

This is the moſt perfect ſtate of the flower: in this condition we are ſure to find it wild, where all things favour; and to this ſtate it may be brought in gardens: neither are we to ſuppoſe, becauſe we ſee the flower ſmaller, or the colouring otherwiſe diſpoſed, that the ſpecies is diſtinct.

The filaments are only two: they are fixed to the female part, and are terminated by upright buttons, which are defended by the inner edge of the nectarium.

The rudiment of the fruit, which ſupports the flower, is twiſted, the ſtyle is ſingle, and is fixed to the interior edge of the nectarium, and crowned with a ſmall head.

The ſeed-veſſel, which follows every flower, is of an oblong, oval form, obtuſe, ſtriated, formed of three valves, and marked with three ribs: the ſeeds are very minute and brown.

Culture of the BEE-FLOWER.

The plant is wild in all the temperate parts of Europe, but it is no where common; for of millions of the ſeeds, which the winds ſcatter, ſcarce one falls where it can ſhoot.

It is found principally on the hollow ſides of old gravel-pits, where there has been time for a ſlight covering of graſs, and ſometimes in the looſe earth, near the hedges of woods. In theſe latter places, the flower is uſually ſmall; where there is leſs moiſture, and more ſun, it attains the due perfection.

It may be raiſed on the edges of wilderneſſes, but it will there be liable to many diſadvantages: the true place is a hollow, in a dry ſpot, well defended, and where the ſurface may be covered with a ſlight coat of graſs, not in turfs, but ſcattered.

The method ſhould be this: when the plants are in flower, mark as many of the ſtrongeſt and beſt, as are intended to be taken into the garden.

Chuſe a place for them that is open to the ſouth-eaſt, and perfectly defended from cold winds; dig out the mould two full ſpades depth, and bring into the place as much of the ſoil in which the plant is growing, as will fill up the room of it.

Let this be taken, not only from the gravel-pit, but from the ſame ſide of the pit, and and as near the plant, as may be done with ſafety, from diſturbing their roots.

Let this lie a month to ſettle: by that time the ſtalk and leaves of the plant will be in a withered ſtate.

The gardener muſt watch his time when they are juſt faded, and then take them up by the roots.

In this there muſt be a great deal of care uſed.

He is not to ſuppoſe he takes up all the root of an Orchis, who gets the double bulb: the fibres run to a great depth, and ſpread a great way; and unleſs theſe are brought up entire, and delivered uninjured to the new ſoil, there is no hope of ſucceeding.

The method muſt be this, a cool evening when the air is damp, muſt be choſen for the purpoſe: the gardener muſt dig round at the diſtance of a foot, every way from the ſtem, and he muſt clear the ſoil away full two ſpades depth.

A hole of eqal diameter muſt be opened in the bed, and the whole ball muſt be taken up with the root undiſturbed in it, and let into the hole unbroken; the earth muſt be filled in to cloſe up the ſpace, and a gentle watering muſt be given in that place, not near the root.

Then ſome hay-ſeed muſt be ſcattered upon the ſurface, and all left to nature; the graſs muſt be ſuffered to grow moderately, and the plant will riſe as naturally among it as in the original pit.

A little graſs ſeed muſt then be ſcattered over the intermediate ſpaces of the border, between the firſt root, and the others removed in the ſame manner, and when the graſs appears it muſt be thined. No part of the bed muſt be left naked, nor muſt it any where grow too cloſe. The original root will flower; the ſeeds will ripen, and all muſt then be left to nature. They will fall among the graſs, and over the border, and ſome will ſtrike and produce new plants.

This is the method when the plants grow wild near the garden; but from greater diſtances it muſt be brought without ſuch incumbrance. Such a bed ſhould be prepared: the roots ſhould be taken up in the ſame manner when the leaves and the ſtalks are faded; and wrapped up in ſome damp moſs. When they come to the place they muſt be planted immediately at four inches depth, and the mould cloſed over them without preſſing it down.

The ſeeds ſhould alſo in this caſe be preſerved from the wild plants and ſcattered over the ground: this will give a fair chance for ſome plants; the other is a certainty.

BEECH *Tree*, *Fagus*, a genus of plants ranged by Linnæus, among the *monoacia polyandria*, and of which there are three ſpecies; 1. Beech tree with oval ſawed leaves, or the common Beech tree. 2. Beech tree with ſpear-ſhaped leaves, ſharply ſawed, and naked on their underſides. 3. Beech tree, with oval, ſpear-ſhaped leaves, ſharply ſawed, and woolly on their underſide.

This tree is propagated by ſawing the maſt; the ſeaſon for which is any time from October to February, only obſerving to ſecure the ſeeds from vermin when early ſowed; which if carefully done, the ſooner they are ſown the better, after they are full ripe: a ſmall ſpot of ground will be ſufficient for raiſing a great number of trees from ſeed, for if the plants come up very thick, the ſtrongeſt of them ſhould be drawn out the autumn following, that thoſe left may have room to grow; ſo that a ſeed-bed carefully managed will afford a three years draught of young plants, which ſhould be planted in a nurſery; and, if deſigned for timber trees, at three feet diſtance, row from row, and eighteen inches aſunder in the rows.

But if they are deſigned for hedges (to which the tree is very well adapted) the diſtance need not be ſo great; two feet from each row, and one foot in the row will be ſufficient. In this nurſery they may remain two or three years, obſerving to dig up the ground between the roots once a year, that their roots may the better extend themſelves each way: but be careful not to cut or bruiſe their roots; and never dig the ground in ſummer, when the earth is hot and dry, which, by ſetting in the rays of the ſun to the root, is often the deſtruction of young trees.

This tree will grow to a conſiderable ſtature, though the ſoil be ſtrong and barren, as alſo upon the declivity of hills, and chalky mountains, where they will reſiſt the winds better than moſt other trees; but then the nurſeries for the young plants ought to be made upon the ſame ſoil, for if they are raiſed in good ground and a warm expoſure, and afterwards tranſplanted into a bleak barren ſituation, they ſeldom thrive; therefore the beſt method is to have the nurſery made upon the ſame ſoil where the plantation is intended, and to annually draw out plants to extend the plantation.

It delights in a chalky or ſtony ground where it generally grows very faſt.

BEET *beta*, a genus of plants ranged by Linnæus among the *pentandria digynia*, and of which there is but one ſpecies, though ſeveral varieties.

This is a biennial plant. It grows naturally in many parts of England and Holland near the ſea coaſt, and is propagated by ſowing the ſeeds in march on a deep light ſoil. When the plants have put out four leaves they ſhould be hoed out to the diſtance of four or five inches, and carefully cleared of weeds; in three or four weeks after this, the ground ſhould be hoed over again, the weeds cut up, and the plants thinned to a greater diſtance: and in a month afterwards, the ground ſhould be hoed a third time, and the plants thinned to the diſtance of a foot or more. Tranſplant ſome of the fineſt to a ſheltered ſpot of ground, where they may be defended from high winds, which, if they are not well ſupported, will break down their ſtalks, eſpecially when the ſeeds are formed and become heavy. Theſe will be perfectly ripe the latter end of September, when the ſtalks ſhould be cut off, dried and threſhed out, and the ſeeds cleaned and put up for uſe.

BELL-FLOWER, *Campanula*. See CAMPANULA.

BEIDAL-OSSAR, a ſpecies of Aſclepias. See ASCLEPIAS.

BERBERRY-TREE *or Pipperridge buſh*, a genus of plants ranged by Linnæus among the *hexandria monogynia*, and of which there are only two ſpecies. 1. Berberry with branching foot Stalks, or the common Berberry buſh. Berberry with a ſingle flower on each foot ſtalk.

Theſe are ſhrubby plants: the firſt ſpecies grows wild in many parts of England, and moſt other countries in Europe, and is generally propagated by ſuckers, which are put out in great plenty from the root; but the method of propagating it by layers is the beſt: the branches ſhould be laid down in the autumn, when their leaves begin to fall, and the young ſhoots of the ſame year are the moſt proper for this purpoſe. The following autumn they may be taken off the old plant, and planted where they are deſigned to remain. When this Shrub is cultivated for its fruit, it ſhould be planted ſingle, the ſuckers taken away every autumn, and all the groſs ſhoots pruned out. The ſecond ſpecies is a native of Crete, and may be propagated in the ſame manner as was directed for the firſt; but the branches ſhould be planted in pots, and ſheltered under a frame in the winter. When they have obtained ſtrength they may be turned out out of the pots, and planted in a warm ſituation.

BERRY, *bacca*, a fruit containing a number of ſeeds in the midſt of a ſucculent pulp.

BETONY, a genus of plants ranged by Linnæus under the *didynamia gymnoſpermia*, and of which there are four ſpecies. 1. Betony with an interrupted ſpike, and the middle ſegment of the lower lip of the flowers indented at the end. 2. Betony with whole ſpike and the middle ſegment of the lower lip of the flower entire, or Oriental Betony. 3. Betony with a ſpike leafy at the baſe. 4. Betony with flowers growing in whorls round the ſtalks, and prickly flower-cups. Among theſe ſpecies the Oriental Betony only is generally cultivated.

It is a plant which curioſity more than beauty has brought from diſtant climates into our gardens. But as it requires little trouble in the culture, it is well worthy its place among the reſt. The root is compoſed of numerous large fibres connected to a large head. The leaves riſe in great number, and have large footſtalks; they are long and narrow, largeſt at the baſe, ſmaller all the way to the point; deeply indented at the edges, and of a light green. The ſtalks are ſquare, thick, very robuſt, and a foot and a half high; of a pale green and a little hairy. The leaves on theſe are placed in pairs, and at conſiderable diſtances: they alſo have foot ſtalks, and are like thoſe from the root, long, narrow, and notched at the edges, ſharp pointed, and of a pale green.

A large ſpike of flowers terminates each ſtalk, and others ſtand in the boſoms of the leaves: they are ſmall, but in the cluſters very conſpicuous; labiated from, and of a delicate red with a purpliſh tinct.

The cup is formed of one piece; tubular, divided into five long, ſmall, and ſharp points. and ariſtated. The flower is formed of a ſingle petal, tubular at the baſe, and bent; and at the top divided into two lips. The upper lip is obtuſe, erect, plain, and undivided. The lower is cut into three ſegments, and the middle one of theſe is entire; this is ſingular to the ſpecies of Betony here deſcribed; in all the others there is a nick at its end.

In the Body of the flower are placed four filaments, two longer and two ſhorter, with roundiſh buttons; and amidſt theſe a ſimple ſtyle ſplit into two parts at the head. The ſeeds follow naked, the cup ſerving as their defence, and they are four in number.

Culture of this BETONY.

It is a native of the Eaſt, but bears our winters in the open air. It loves a deep ſoil; and no compoſt ſuits it better than a common garden mould. As it is a perennial, fibrous, rooted plant, it may be eaſily propagated by the roots in autumn, but the beſt method is to raiſe it from ſeed. This ripens well with us, and the plants thus obtained, are always the handſomeſt, and moſt regular in their growth.

The method is this. Save ſeeds from a ſtrong and hearty plant, and when they have been well dried, and carefully preſerved through winter, ſow them in the beginning of April upon a piece of common ground in the nurſery. When the plants are grown ſtrong enough to remove, take up as many of them as are intended to be raiſed, and plant them at a foot diſtance, in a border of rich mould, there let them ſtand all the remainder of the ſummer, and through the winter: the next year they will flower. In autumn they ſhould be taken up, and planted afreſh in a new quantity of mould, and thus they will continue in beauty many years; but the beſt method is to raiſe a new ſtock frequently from ſeed; for the plant never is ſo perfect as the firſt year of its flowering.

BEURERIA, a genus of plants ranged by Linnæus among the *icoſandria polygamia*, and of which there is no Engliſh name. Singularity, fragrance, and beauty, all conſpire to render this one of the fineſt ſhrubs with which America has enriched our gardens.

It is a tall ſhrub of irregular growth, very handſome in its natural wild form, and capable at the gardener's pleaſure of being trained up to a regular tree. The root is large and and ſpreading; the ſtem is firm and rough; the branches are numerous, and ſpread irregularly, and their bark is a pale brown. The leaves are broad and oval, except that they grow ſmall at the baſe, and of a freſh but not deep green; undivided at the edges, ſharp pointed, and lightly ribbed: they ſtand in pairs and diſpoſe themſelves in all directions.

The flowers are large, elegant, and of a deep but very duſky purple; compoſed of numerous petals waved, and irregularly diſpoſed about a multitude of heads; they have a faint ſingular ſmell. The bark has an aromatic ſcent, in a much higher degree.

Culture of the BEURERIA.

Though it is a native of the warmer parts of America, with proper care it will live through the year in the open air of our climate. We muſt imitate nature, who generally allows it a deep ſoil and a defended ſituation. The gardener muſt chuſe a very rich piece of ground in a warm quarter of the garden, and by digging in a good quantity of pond mud and ſome old cow-dung, he will mend the quality of the ſoil without heating it. The beſt method of propagating it is by layers: cuttings are very precarious; and it never ripens ſeeds in England, nor have we ever ſeen the mature fruit from abroad. Put a quantity of rich garden mould into a long rough box, this muſt be raiſed on a treſſel to ſuch a height, that the branch intended to be laid, can be brought down to it without much force. Then make an opening along the mould in the box, and bring a young branch of the ſhrub gently down to it. Let ſome holes be pierced through the ſtalks about the inſertions of the leaves, and a piece of braſs wire be twiſted round it tight juſt above. In this ſtate lay it in the opening, faſten it down by pegs, and covering it with the mould, give it a moderate watering, and let this be repeated as often as the mould requires it. There is a great advantage in uſing a large box of mould on this occaſion, for it continues much longer and better in a growing condition than a ſmall quantity; and there is danger in frequent waterings of chilling the new roots. The layer ſhould remain a twelvemonth in this condition, and it may then be removed and planted in a warm ſituation with the ſame good ſoil. It will flower the third or fourth year, and from that time conſtantly, and in vaſt profuſion.

BIGNONIA, the *Trumpet-flower*, or *Scarlet Jeſmine*, a genus of plants which Linnæus places among the *didynamia angioſpermia*, and of which there are thirteen ſpecies. 1. Bignonia with ſingle heart-ſhaped leaves, an erect ſtalk and flowers with two ſtamina, commonly called Catalpa. 2. Bignonia with ſingle ſpear-ſhaped leaves, and a twining ſtalk, or the ever-green Bignonia. 3. Bignonia with jointed leaves and tendrils, with oval ſpear-ſhaped lobes, two flowers upon footſtalks and narrow pods. 4. Bignonia with jointed leaves and tendrils, with oval heart-ſhaped lobes, and flowers in branching panicles. 5. Bignonia with jointed leaves and tendrils, heart-ſhaped lobes, and the lower leaves trifoliate. 6. Bignonia with jointed leaves and tendrils, heart-ſhaped lobes, and the lower leaves ſingle. 7. Bignonia with finger-ſhaped entire leaves. 8. Bignonia with finger-ſhaped pinnatified leaves. 9. Bignonia with pinnated leaves, cut lobes, and roots coming out at their joints, commonly called Trumpet-flower. 10. Bignonia with decompounded leaves, cut lobes, and tendrils coming out at their joints. 11. Bignonia with leaves doubly wined, and intire, heart-ſhaped, acute lobes. 12. Bignonia with leaves doubly winged, and ſpear-ſhaped entire lobes, commonly called baſtard Guaiacum. 13. Bignonia with conjugate-leaves, ſhort tendrils, and divided into three parts, called quadrifoliate Bignonia.

Of theſe ſpecies we ſhall deſcribe the firſt and the laſt only, as their culture will be a ſufficient direction for the reſt.

Catalpa Bignonia, this is a tree near twenty feet high, which grows naturally in Japan and Carolina, and is propagated either by ſeeds or cuttings.

The ſeed for the culture of this Bignonia, as they do not ripen in our climate, muſt always be procured from Carolina. Sow them in middle-ſized pots, then ſet them up to the rim in a moderate hot-bed, and when the plants appear, give them a little air; encreaſe this gradually, till by degrees you inure them to the open air; in June place them abroad in a ſheltered ſituation. Here they may remain till autumn, then put them under a common frame, allowing them air in mild weather. The ſpring following let the plants be taken out of the pots, and planted in a nurſery bed in a warm ſituation, let them ſtand about two years, and then remove them to the places where they are deſigned to remain.

The cuttings ſhould be planted in pots, in the ſpring, before the trees begin to puſh their ſhoots, and plunged into a moderate hot-bed; refreſh them frequently with gentle waterings, and ſhade them in the middle of the day. When they have taken root, inure them by degrees to the open air, and then let them be treated like other ſeedling plants.

Quadrifoliate Bignonia. This noble plan tis a native of the American iſlands, and, with very moderate care, will acquire in our gardens an equal perfection to what it ſhews in thoſe places. The root is long, thick, and black on the outſide, furniſhed with many fibres, and of a diſagreeable bitter taſte. The ſtalk is very long, weak, and unable to ſupport itſelf; nature has therefore given it tendrils wherewith to climb, formed in a peculiar manner for laying hold of every thing that comes in its reach; they are long, ſlender, and curled, divided into three parts, and theſe again often ſubdivided into portions ſcarce thicker than hairs. The colour of the ſtalks is reddiſh, they are ſmooth and tough, and naturally wind about any thing which is able to ſupport them, by this method, and the aſſiſtance of their tendrils, they keep themſelves up to a vaſt height.

The leaves are oblong, broad, and not unlike thoſe of the Laurel, but they have a kind of appendage or ear at the baſe. They riſe in a regular manner four from each joint; and they are ſupported on a divided footſtalk, of an inch long, from the center of which diviſion riſes the three parted tendril. Their colour is an elegant green, paler on the under than on the upper ſide, and ribbed with purpliſh veins.

The flowers are large and elegant, they riſe from the ſame part with the leaves, uſually two from each joint; and inthe full blow they thus cover the plant and afford a very grand appearance. They are two inches in length and their colour is a rich orange ſcarlet.

Culture of the Quadrifoliate Bignonia.

Where this plant is native it is always found in a deep rich ſoil; for its reception here, rich garden mould is better than any compoſt which can be prepared. Though it will live through our winters in a warm ſituation when it has acquired ſome ſtrength, the young plants are tender. It will therefore be proper to raiſe them in a hotbed, and by degrees inure them to the air.

Good ſeeds muſt be procured from the Weſt Indies; and early in ſpring let them be ſown upon a hot-bed, among other tender annual plants, they will require the ſame care with the reſt, and no other.

When they have had their repeated removals with the others, they muſt be tranſplanted into an open border, againſt a wall, expoſed to the ſouth ſun, and defended from cold winds; here they will grow very faſt, and will flower the ſecond year. After this, they will only require pruning in ſpring, taking out dead ſtalks, and ill growing branches, to keep them in order: their tendrils will faſten them to the wall, and they will every year, early in ſummer, cover it to a vaſt extent with their noble flowers.

After this, they may be increaſed by laying the branches which root freely, and after one year will be fit for removing into thoſe parts of the garden they are intended to adorn.

BILBERRY, *Vaccinium*, a genus of plants, ranged by Linnæus among the *octandria monogynia*, and of which there are twelve ſpecies; but none of them cultivated in gardens. Two of the ſpecies grow wild in moory ground, in ſeveral parts of England; and the reſt in boggy tracts in the colder parts of Europe.

BINDWEED, *Convolvulus*, a genus of plants ranged by Linnæus among the *pentandria monogynia*; and of which there are thirty-one ſpecies, ſeveral of which are common weeds, and others too tender to be propagated in this country.

We however raiſe here various kinds of Bindweeds for the decoration of our gardens, and there is not one of them without its beauty; but the velvet Bindweed excels all by its vaſt growth, and its perpetual verdure; and the method of cultivating this plant, will be a ſufficient direction for the reſt.

The root is thick, divided, furniſhed with many fibres, and ſpreading. The ſtalk is round, hairy, and naturally purple: it riſes, where it can climb, to the height of twenty feet, and covers its ſupport with innumerable leaves and branches, the leaves are placed alternately, and they are of a diſtinguiſhed elegance. They have long reddiſh footſtalks, and their ſhape is heart-like: they are broad and lightly indented at the baſe; waved at the edges; and ſharp pointed.

They are of a pale but not unpleaſing green, thick, covered with a greyiſh, ſilvery down. This gives them a hoary aſpect, very pleaſing to the eye; and to the touch a ſoftneſs equal to velvet. They appear various according to their age; for the plant is covered with them at all ſeaſons. Towards the bottom they are often red, as they decay; and on the reſt of the plant a part of them are ſofter and paler; theſe are the younger ones; and a part of long ſtanding, duſkier in their colour, and to the touch more harſh. On theſe laſt the ribs and veins are moſt conſpicuous, and they are often purpliſh. The flowers are large, and where the plant is well eſtabliſhed, very numerous. Some ſtand ſingly, others five, ſix, or more together; and their colour is a ſnowy white, more or leſs tinged with red. Their form is broad and ſpread out like a bell. Each is formed of a ſingle petal, expanding from the baſe into the wide rim, and folded in various places. It ſtands in a ſmall cup, divided into five light ſegments; and in its centre riſe alſo five ſhort filaments, crowned with oval, flatted buttons. The ſtyle is placed ſingle among theſe, but is ſplit at the top; and the ſeeds are contained in a divided capſule.

It is a native of the Canary Iſlands; but it will live and flower, with moderate care, in our climate. There it delights in woody places, and aſcends, as Ivy, the talleſt trees: with us it muſt be ſupported by poles properly planted.

Culture of the Velvet Bindwood.

It is a green-houſe plant, free to the air in ſummer, and only requiring ſhelter againſt froſts; and it may be raiſed from ſeed, or propagated by laying the branches. The former method raiſes the fineſt plants when the ſeeds can be obtained in their perfection: but the other furniſhes very good ones, and they will ſooner come to flower. If the ſeeds are preferred, they muſt be had freſh, and the plants raiſed in a hot-bed. In the other method little time is loſt, for the branches take root eaſily. They muſt be laid in March, covered four inches with earth, and aſſiſted in rooting by frequent waterings. In the September following they muſt be taken from the mother-plant. Each of theſe muſt have a large pot. The ſoil that our experience has ſhewn beſt to ſuit them is this: mix three barrows of light paſture, with two of wood-pile earth, and one buſhel of ſheep's-dung. Time mellows and prepares theſe mixtures; and as there is always notice of their being wanted, the advantage ſhould be taken. Let the gardener at the ſame time he lays the branches of this plant, pile up in an open place this mixture. He muſt once in a month break and turn it, to deſtroy weeds and open it to the rains and dews; and by that time his layers are fit to be removed, it will be well mellowed, and fit for their reception. In the centre of each pot muſt be ſet a pole ſeven feet in length, and taper to the top; and the great care will be to ſecure this firmly. Then plant a layer in the pot: ſo placing it that the rooted part lie free, and be very well covered, and the ſhoot riſe near the pole.

Let the pot be filled within an inch with this ſoil, and the young ſhoot tied up to it with a piece of green worſted. Then give it a gentle watering and place it in the ſhade; defending it continually from the ſun, and frequently repeating the watering till it has taken very good root. After this place it among the green-houſe ſhrubs for the ſhort remainder of the ſeaſon they are to ſtand out; and afterwards remove it under ſhelter with them.

Nothing more than the common care will after this be neceſſary: it will make its own way up the pole; and when it can riſe no higher will ſend out the more branches. A year from the planting it out, it will flower, and continue to do ſo abundantly.

This is the advantage of the layers over the ſeedlings; for they ſometimes do not come to flower before the fourth or fifth year.

BIRCH-TREE, *Betula*, a genus of plants, ranged by Linnæus among the *monoecia tetrandria*, and of which there are four ſpecies.

1. The common Birch-tree. 2. Dwarf Birch, with roundiſh leaves. 3. Birch-tree, with oblong, pointed, heart-ſhaped ſawed leaves. 4. Black Virginia Birch-tree.

The firſt is the common Birch-tree, which is ſo well known, as to need no deſcription; this is not much eſteemed for its wood, but however, it may be cultivated to advantage upon barren land, where better trees will not thrive; for there is hardly any ground ſo bad but this tree will thrive in it; for it will grow in moiſt, ſpringy land, in dry gravel, or ſand, where there is little ſurface: ſo that upon ground that produced nothing but moſs, theſe trees have ſucceeded ſo well, as to be fit to cut, in ten years after planting, when they have been ſold for near ten pound per acre ſtanding, and the after produce has been conſiderably increaſed. And as many of the woods near London, which were chiefly ſtocked with theſe trees, have been of late years grubbed up, ſo the value of theſe plantations have advanced in proportion: therefore thoſe perſons who are poſſeſſed of ſuch poor land, cannot employ it better, than by planting it with theſe trees, eſpecially as the expence of doing it is not great.

The beſt method of cultivating this tree, is to furniſh yourſelf with young plants from the woods, where they naturally grow, and are generally found there in great plenty; but in places where there are no young plants to be procured near, they may be raiſed from ſeeds, which ſhould be carefully gathered in the autumn, as ſoon as the ſcales under which they are lodged begin to open, otherwiſe they will ſoon fall out, and be loſt: the ſeeds are ſmall, ſo ſhould not be buried deep in the ground. The autumn is the beſt ſeaſon to ſow them, and in a ſhady ſituation, the plants will thrive better when they are not expoſed to the full ſun; for in all places where there are any large trees, their ſeeds fall, and the plants come up well without care: ſo that if the young plants are not deſtroyed by cattle, there is generally plenty of them in all the woods, where there are any of theſe trees: theſe wild plants ſhould be carefully taken up not to injure their roots. The ground where they are to be planted, will require no preparation; all that is neceſſary to be done, is to looſen the ground with a ſpade, or mattock, in the places where the plants are to ſtand, making holes to receive the roots, covering them again, when the plants are placed, cloſing the earth hard to their roots. If the plants are young, and have not much top, they will require no pruning; but where they have buſhy heads, they ſhould be ſhortened, to prevent their being ſhaken and diſplaced by the wind. When the plants have taken root, they will require no other care, but to cut down the great weeds, which would overhang the plants, being careful not to cut or injure the young trees. This need not be repeated oftner than twice in a ſummer the two firſt years, after which time the plants will be ſtrong enough to keep down the weeds, or at leaſt be out of danger from them.

The ſecond ſort grows naturally in the northern parts of Europe, and upon the Alps: this ſeldom riſes above two or three feet high, having ſlender branches, garniſhed with round leaves, but ſeldom produces either male or female flowers here. It is preſerved in ſome curious gardens, for the ſake of variety, but is a plant of no uſe.

The third and fourth ſorts grow naturally in North America. In Canada theſe trees grow to a large ſize, where the third ſort is called Meriſier.

The natives of that country make canoes of the bark of theſe trees, which are very light, and of long duration.

Both theſe ſorts may be propagated by ſeeds, in the ſame manner as the firſt, and are equally hardy.

BIRD'S-EYE, a ſpecies of the Primroſe. See the article Primrose.

BIRTHWORT, *Ariſtolochia*, a genus of plants, ranged by Linnæus among the *gynandria hexandria*, and of which there are thirteen ſpecies.

1. Birthwort, with leaves divided into two lobes. 2. Birthwort, with leaves divided into three lobes. 3. Birthwort, with peltated, kidney-ſhaped leaves. 4. Birthwort, with long, heart-ſhaped leaves, and an erect, ſhrubby ſtalk. 5. Birthwort, with oblong, heart-ſhaped leaves, a twining ſtalk, and many flowers on each footſtalk. 6. Birthwort, with heart-ſhaped, pointed leaves, a twining ſtalk, and ſingle flower ſtalks, longer than thoſe of the leaves. 7. Hairy Birthwort, with hanging, recurved flowers, growing ſingly, and formed like a lip. 8. Birthwort, with heart-ſhaped, oblong, waved leaves, a weak ſtalk, and flowers growing ſingly. 9. Birthwort, with heart-ſhaped, oblong, plain leaves, weak, flexible, taper ſtalks, and ſingle flowers. 10. Birthwort, with heart-ſhaped, indented leaves, growing upon foot-ſtalks, and ſingle flowers, called piſtolochia. 11. Birthwort, with heart-ſhaped, ſeſſile, obtuſe leaves, a weak ſtalk, and flowers growing ſingly. 12. Birthwort, with heart-ſhaped, intire obtuſe leaves, a weak ſtalk, and ſingle flowers. 13. Birthwort, with heart-ſhaped leaves, an erect ſtalk, and flowers growing in cluſters from the ſides of the ſtalks.

Culture of the Birthworts.

The three firſt ſpecies are natives of South America, and are propagated by ſeeds, which muſt be procured from the countries where the plants grow naturally: for they do not ripen here; theſe ſhould be ſown in ſmall pots, filled with light earth, as ſoon as they arrive. Should this happen in the ſpring or ſummer, the pots ſhould be plunged into a moderate hot-bed, and ſhaded during the heat of the day. If the plants do not appear before autumn, let the pots be plunged into the tan-bed, in the ſtove. Should the ſeeds arrive in the autumn, or the winter, the pots ſhould be plunged into the ſtove tan-bed, where they may remain till March; let them then be removed and plunged into a hot-bed, under frames. When the plants have acquired a ſufficient degree of ſtrength, let them be tranſplanted each into a ſeparate ſmall pot, and plunged into the tan-bed, in the ſtove, where they muſt be preſerved. The fourth ſpecies is a ſhrubby plant, and a native of North America; it may be propagated either by ſeeds, or parting the roots. The plants are generally kept in pots, and ſheltered during the winter, but will thrive better in the full ground, if they are protected from ſevere froſts. The fifth ſort has a perennial root, is a native of India, and muſt be treated like the firſt three ſpecies. The ſixth is a native of Spain and Crete, And the ſeventh of the iſland of Chios. Theſe are all perennial plants, which may be propagated by ſeeds ſown in autumn, in pots filled with light earth, and placed under a frame, to protect the tender plants from froſts. The glaſſes ſhould however, be taken off at all times, when the weather is mild. As ſoon as the plants come up, let them be ſhaded in the heat of the day, and frequently refreſhed with water. As the ſeaſon advances, they ſhould be inured by degrees, to bear the open air; and when the pots are taken out of the bed, let them be placed in an eaſtern expoſure; during the ſummer they ſhould be conſtantly weeded, and in dry weather refreſhed with water. In the winter the pots muſt be ſheltered, as before; and in March, before the plants begin to ſhoot, they ſhould be tranſplanted into ſeparate ſmall pots, filled as before, and ſet again under the frame, till the beginning of May, when they may be removed into the open air, and treated as in the preceding ſummer; and in the winter following ſecured as before. In the ſpring they may be turned out of the pots, and planted in a warm border, where they muſt be kept clean from weeds; and in the autumn, when their ſtalks are decayed, let the ground be covered with old tanners bark, to keep out the froſt. The eighth ſpecies is alſo a native of Crete, and has a perennial root, by parting of which it is propagated, as it never ripens ſeeds in this country. The plants are preſerved in pots, placed under a frame in winter, where in mild weather they ſhould have as much free air as poſſible. The ninth ſort is a native of Virginia, has a perennial root, and is propagated by ſeeds, in the manner directed for the ſeventh ſpecies. The tenth ſort is alſo a perennial plant, growing naturally in France and Spain, and is preſerved only in botanic gardens, for the ſake of variety. The eleventh and twelfth ſpecies are natives of Italy, and are propagated like the ſeventh ſort. The thirteenth ſpecies grows naturally in France and Tartary, and will ſpread by its creeping roots, and ſucceed in any ſoil or ſituation.

BITTER-VETCH, *Orubus*, a genus of plants, ranged by Linnæus among the *diadelphia decandria*, and of which there are eight ſpecies.

1. Bitter-vetch, with leaves placed in pairs, cloſe to the ſtalks, and with indented ſtipulæ. 2. Bitter-vetch, with oblong, winged leaves, roundiſh, moon-ſhaped, indented ſtipulæ, and a ſingle ſtalk. 3. Bitter-vetch, with oval, winged, entire leaves, half arrow-pointed ſtipulæ, and a ſingle ſtalk. 4. Bitter-vetch, with a branching ſtalk, and leaves compoſed of ſix pair of oblong, oval lobes.

Culture of the Bitter-vetch.

Theſe are ornamental plants, and very hardy, they have perennial roots, by the parting of which they may be propagated. The proper time for doing this, is in autumn; they thrive beſt in a ſhady ſituation, and a loomy ſoil. They are alſo propagated by ſeeds ſown in autumn. When the plants come up, they ſhould be kept clean from weeds, and thinned where they grow too cloſe. The next autumn they ſhould be tranſplanted to the places where they are intended to remain.

BIXA, *Roucou*, *Anotta*, *or Arnotta*, a genus of plants, ranged by Linnæus among the *polyandria monogynia*, and of which there is but one known ſpecies.

The ſingularity and beauty of this ſhrub, renders it worthy the attention of the curious.

It is a native of the hotter parts of America, with us it requires the heat of the ſtove; and with our greateſt care it will riſe but to a moderate ſhrub, though in its own climate it grows much larger. The ſtem is covered with a pale brown bark; the upper ſhoots are yellowiſh, and on the young twigs there is often a light and elegant tinge of purple. The leaves are placed irregularly, and are in nothing conſpicuous, except in their elegant and gloſſy green; they are broad at the baſe, narrow to the point, and waved along the edges, have moderate foot-ſtalks, and their ribs are large and yellow, or purpliſh. The flowers are large, and of a pale, but elegant red, often diverſified with ſtains of white: they grow principally at the extremities of the branches, and have a tuft of purple buttons, ſupported by long filaments, in the centre.

The fruit is large, and of an oval ſhape, it is beſet with prickles, and full of ſcarlet ſeeds; it is ſurrounded at the bottom by a ſmall cup, which is divided lightly into five ſegments, and which before covered the baſe of the flower.

The Culture of the Bixa.

The ſeeds are eaſily obtained, and it may be raiſed from them without difficulty. The firſt care ſhould be to have them freſh; for after two or three years, they will rarely ſhoot.

When you have ſucceeded in this, let a mixture of two parts garden-mould, one part ſand, and one part rotten wood, be prepared; and with this let a couple of common pots be two thirds filled. Scatter the ſeeds upon the ſurface, cover them an inch deep, and ſet the pots in a tan-bed. The plants will appear after ſome time, they muſt then be refreſhed with gentle waterings, and allowed a little air. When they have four or five leaves a-piece, they muſt be tranſplanted each into a ſeparate pot of the ſame ſoil, and gently watered. Theſe pots ſhould be placed in another tan-bed, with a deeper frame; and as the weather grows warmer, and the plants ſtronger, they ſhould have more air.

The waterings are to be repeated at times, and the air admitted carefully, till they have attained more ſtrength and bigneſs: they are then to be removed into the ſtove, and to take their chance with the other plants. They will not flower before the third year: in the mean time they will be no unpleaſing ſight; their leaves and ſhoots being of an elegant and agreeable colour.

BIVALVE, an appellation given to ſuch pods, or capſules, as conſiſt of two valves, incloſing the ſeed.

BLADDER SENNA. See Colutea.

BLADDER-NUT. See Bladder-nut.

BLANCHING, in gardening, an operation performed on certain ſallads, roots, &c. as of Celery and Endives, to render them fairer and fitter for the table.

The time for Blanching of Celery, is about the middle of June, when ſome of the firſt ſowing will be fit to plant out in trenches for this purpoſe.

Theſe trenches are to be cut by a line, eight or ten inches wide, and about as many deep, into which they put their plants, after having firſt pruned off the tops and roots. As they grow large, you muſt earth them up within four or five inches of their tops, and ſo continue to do at ſeveral times, till whitened ſufficiently for uſe, which they will not ordinarily be, till ſix weeks after earthing them up. With regard to Endive, as ſoon as it is well grown, they tie up ſome of it to whiten, and continue every fortnight, as long as it laſts, to tie up freſh parcels.

BLIGHTS are often cauſed by a continued, dry, eaſterly wind, for ſeveral days together, without the intervention of ſhowers, or any morning dew, by which the perſpiration in the tender bloſſoms is ſtopped, ſo that in a ſhort time their colour is changed, and they wither and decay; and if there happen a long continuance of the ſame weather, it equally affects the tender leaves, whoſe preſpiring matter becomes thickened and glutinous, ſo as cloſely to adhere to the ſurface of the leaves, and become a proper nutriment to inſects, which are always found preying on the leaves and tender branches of fruit-trees; when this ſort of Blight happens, though it be not the inſects which are the firſt cauſe, the beſt remedy yet known, is gently to waſh and ſprinkle over the trees from time to time with fair water; and if the young ſhoots ſeem much infected, to waſh them with a woollen cloth, ſo as to clear them, if poſſible, from this glutinous matter, that their reſpiration and perſpiration may not be obſtructed. Add, that broad flat pans, or tubs of water, being placed near the trees, which may receive the vapours exhaled from them, will help to keep their tender parts in a ductile ſtate; but whenever this operation of waſhing the trees is performed, it ſhould be early in the day, that the moiſture may be exhaled before the cold of the night comes on, eſpecially if the nights are froſty; nor ſhould it be done when the ſun ſhines very hot upon the wall, which would be apt to ſcorch up the tender bloſſoms. Another cauſe of Blights in the ſpring, is the ſharp hoary froſts, which are often ſucceeded by hot-ſun-ſhine in the day-time, which is the moſt ſudden and certain deſtoyer of fruits known; for the cold of the night ſtarves the tender parts of the bloſſoms, and the ſun riſing hot upon the walls before the moiſture is dried from the bloſſoms, which being in ſmall globules, doth collect the rays of the ſun, and thereby ſcorch the tender flowers, and other parts of the plants.

But Blights are frequently no more than an inward weakneſs, or diſtemper in trees, which evidently appears, if we conſider how often it happens, that trees againſt the ſame wall, expoſed to the ſame aſpect, and equally enjoying the advantages of ſun and air, with every other circumſtance, which might render them equally healthy, are often obſerved to differ greatly in ſtrength and vigour: and as often do we obſerve the weak trees to be continually blighted, when the vigorous ones in the ſame ſituation eſcape. This weakneſs in a tree proceeds either from want of a ſufficient ſupply of nouriſhment to maintain it in perfect vigour, or from ſome ill qualities in the ſoil where it grows, or, perhaps from ſome bad quality in the ſtock, or inbred diſtemper of the bud, or cion, which it had imbibed from its mother-tree, or from miſmanagement in the pruning, &c. But there is another ſort of Blight, againſt which it is more difficult to guard fruit-trees, that is, ſharp, pinching, froſty mornings, which often happen at the time when the trees are in flower, or while the fruit is very young, and occaſions the bloſſoms, or fruit, to drop off: and ſometimes the tender parts of the ſhoots and leaves are greatly injured thereby. The only method yet found out to prevent this miſchief is, by carefully covering the walls either with mats, or canvas, which being faſtened ſo as not to be diſturbed with wind, and ſuffered to remain on during the night, they are to be taken off every day, if the weather permits. Another ſort of Blight, which ſometimes happens in April, or May, and which is often very deſtructive to orchards and open plantations, and againſt which we know of no remedy, is what is called a fire-blaſt, which in a few hours hath not only deſtroyed the fruit and leaves, but many times parts of the trees, and ſometimes whole ones have been killed by it. This is ſuppoſed to be effected by volumes of tranſparent, flying vapours, which among the many forms they revolve into, may ſometimes approach ſo near a hemiſphere, or hemicylinder, either in their upper or lower ſurface, as thereby to make the beams of the ſun converge enough to ſcorch the plants or trees they fall upon, in proportion to the greater or leſs convergency of the ſun's rays. This more frequently happens in cloſe plantations, where the ſtagnating vapours from the earth, and the plentiful perſpirations from the trees, are pent in for want of a free air to diſſipate and diſpel them; than thoſe planted at a greater diſtance, or ſurrounded with hills or woods.

BLITE, or Strawberry Blite, *Blitum*, a genus of plants claſſed by Linnæus among the *monandria digynia*, and of which there are only two ſpecies. 1. Blite with ſpikes terminated by little heads, or the common Strawberry Blite, or Strawberry Spinach. 2. Blite with ſmall heads growing ſcattered from the ſides of the ſtalks.

Culture of the BLITE.

Theſe are annual plants, the ſeeds of which may be ſown in March or April upon a bed of common earth, in an open ſituation. The plants will appear in ſix weeks after, and if they are to remain in the place where they were ſown, will require no other care than to be kept clear from weeds, and to be thinned out, allowing ſix or eight inches between each plant; if permitted, they will drop their ſeeds, and the plants will come up the following ſpring without any further care.

BLOOD-FLOWER, Bloody Lilly, or African Tulip. See the article AFRICAN TULIP.

BLUE BOTTLE, *Centaury*. See the article CENTAURY.

BLUE DAISY. See the article DAISY.

BORBONIA, a genus of plants ranged by Linnæus among the *diadelphia*, or perhaps more properly among the *monodelphia*, and of which there are three ſpecies. 1. Borbonia with entire, ſpear-ſhaped leaves, with many nerves. 2. Borbonia with heart-ſhaped, undivided leaves, marked with numerous ribs. 3. Borbonia with entire, ſpear-ſhaped leaves, with three veins.

Theſe plants are natives of the Cape of Good Hope, where they attain the height of ten, eleven, and ſometimes twelve feet. With us they ſeldom riſe to more than five. The firſt ſpecies has ſlender ſtems divided into ſeveral branches, decorated with ſtiff leaves placed alternately, narrow, long, and ending in a ſharp point. The flowers are placed in ſmall cluſters between the leaves at the end of the branches, theſe are yellow, and in ſhape reſemble thoſe of the Broom.

The ſtem of the ſecond ſpecies is round, tough, of a greyiſh colour, and full of broad leaves, they are of a beautiful green with a tinge of blue. The nerves run high upon them, and their point is prickly. From the main ſtem run many irregular branches, on theſe ſtand numerous leaves with thick tufts of intermingled foliage and flowers on their tops: the leaves in theſe tufts are paler and leſs regularly ſhaped than thoſe on the lower part of the plant: the flowers which riſe among them exceed them in length, and their colour is a very bright golden yellow.

The ſtems of the third ſpecies are ſtronger than either of the former; they are decorated almoſt their whole length, as are alſo their branches, with ſtiff, ſpear-ſhaped leaves. The flowers ſtand at the extremity of the branches each on a ſeparate footſtalk. They are of the ſame ſhape and colour with the former.

Culture of the BORBONIA.

Theſe plants are raiſed from ſeeds, which ſhould be procured from the cape of Good Hope, for they never ripen with us. Make a compoſt for them after the following method.

A barrow of earth from an upland paſture, a buſhel of ſand, and a peck of rotted cow-dung. Early in the ſpring fill a couple of pots, on the ſurface ſcatter ſome of the ſeeds; ſift over them a quarter of an inch of the ſame compoſt, and ſet them up to the rim in a bark-bed. At times give them a gentle watering; when the plants riſe repeat it oftener, and give them air in the middle of the day. When they have a little ſtrength raiſe the pots to the ſurface and give them more air. Soon after this tranſplant the ſtrongeſt of them into ſeparate pots of the ſame compoſt; put theſe into the bark-bed, watering and ſhading them till rooted. Then by degrees bring them into the open air, among the green-houſe plants, and in autumn remove them into ſhelter.

BORDER, in gardening, denotes a narrow bed adjoining to a walk, ſerving to bound and incloſe the parterres, and prevent their being injured by the feet.

The uſe of borders is to incloſe parterres, and ought always to be laid with a riſing in the middle by which they will have a better effect to the eye than if quite flat, and their breadth ſhould be between four and ſix feet. Borders are properly of four ſorts; the firſt are thoſe which are continued about parterres without interruption, and are wrought with a ſharp riſing in the middle, and planted with low ſhrubs and flowers. The ſecond ſort of borders are thoſe which are cut into compartments, at convenient diſtances, by ſmall paſſages; theſe are raiſed in the middle, and planted as the former with ſhrubs and flowers. The third ſort are ſuch as are laid even and flat without flowers, and have only a verge of graſs in the middle, being edged with two ſmall paths, raked ſmooth and ſanded; theſe are ſometimes adorned with vaſes of flowers, of large growth, or flowering ſhrubs, along the middle verge of graſs. The fourth ſort are quite plain, and are only ſanded, as in the parterres of orangeries; and are filled with caſes ranged in regular order along thoſe borders, which are edged with box on the ſides next the walks, and on the other with verges, and graſs work next the parterre. Sometimes a Yew is planted between each caſe, which makes the borders appear richer, and the parterres handſomer, during the winter ſeaſon. Borders are made either ſtrait, circular, or in cants; and are turned into knots, ſcrolls, volutes, and other compartments. The floriſts make borders in any part of their gardens, which they uſually edge with green borders; and this gives them a very neat look: in large parterres all that is expected, is to ſtock them well with flowers, that will ſucceed one another during the ſummer ſeaſon.

BORECOLE, a variety of Cabbage. See the article CABBAGE.

BOREAGE, a genus of plants ranged by Linnæus among the *pentandria monogynia*, and of which there are four ſpecies.

They are plants of no great beauty, therefore ſeldom cultivated in gardens. They are propagated by ſowing their ſeeds on a warm border.

BOSQUETS, in gardening, a term for groves included in gardens.

Theſe are ſmall compartments in gardens, which are formed of trees, ſhrubs, and tall flowering plants, ſet in quarters, and either placed regularly in rows, or diſpoſed in a more irregular manner. Theſe quarters ſhould be ſurrounded with evergreen hedges, and the entrances made into porticos with Yews. In the inſide there muſt be ſome walks, either ſtrait or winding; theſe if the quarters are large ſhould be eight feet wide, and laid with turf, and kept well mowed and rolled. The hedges of theſe quarters ſhould be kept low, that the heads of the ſhrubs may be ſeen from the outſide. There is a great deal of fancy to be employed in the planting theſe Boſquets, which ſhould be ſhown in ſetting to view at once ſuch ſhrubs as have the moſt differently ſhaped, and coloured leaves that may be, as the long, the round, the jagged, and the various ſhades of deep and light green, and the meally or hoary white leaves. Beſides this, there is alſo a great variety of beautiful fruits, which give a very elegant and pleaſant proſpect even after the leaves are fallen. The ſhrubs which produce theſe, are, 1. The Euonymus, or Spindle-tree. 2. The Opulus, or Water Alder. 3. The Cockſpur Hawthorn; and 4. The Flowering Aſh as it is called; beſides an innumerable parcel more. Obſerve never to mix the evergreen trees with thoſe which loſe their leaves in winter. Theſe Boſquets are only fit for large gardens. They are generally laid out into ſome regular figure, as a circle, ſquare, polygon, or the like, and make a conſiderable article in the decoration of a fine garden.

BOTANY, the ſcience or knowledge of plants. Authors are divided about the preciſe object and extent of botany, which ſome will have to include the whole province of plants, in all their ſtates, uſes, and relations: others reſtrain it to the knowledge of the claſſes, genera, ſpecies, external figures and deſcriptions of plants, excluſive of their virtues, which are left to the conſideration of phyſic and pharmacy; of their origin and generation, which are left to phyſiology; and of their culture and propagation, which are left to gardening and agriculture.

The term Botany, ſays a modern writer, has been underſtood as expreſſing the doctrine of plants at large, and in all its various lights; but tracing the origin and progreſs of the ſtudy, we ſee it at ſeveral periods under diſtinct appearances. Theſe however, are all reducible to thoſe general heads, which we may diſtinguiſh by the terms philoſophic, hiſtorical, and ſyſtematic Botany. Of theſe the firſt and nobleſt has been the leaſt cultivated; it began, and in a manner ended, with Theophraſtus; its object is the nature of vegetables as vegetables, independent of all other conſiderations; to this ſucceeded the hiſtorical branch, gathering the names and numbers of plants, their places of growth, their virtues, and their oeconomic uſes: this was the object of thoſe, who ſtudied herbs, from Theophraſtus to the latter end of the ſixteenth century, when Cæſalpinus gave origin to the ſyſtematic Botany: till this time plants were arranged, even thoſe who wrote beſt on them, according to the old and irregular diviſion, into trees, ſhrubs, and herbs; or according to their virtues, the letters of the alphabet, which began with their names, or by ſuch vague and arbitrary methods. Their increaſed number now made it neceſſary they ſhould be better arranged: and this great author has ſtruck out that path, which has ſince been trod ſo happily, of examining their parts, and deducing thence the characters of claſſes, arranging in each claſs all thoſe, which had the peculiar mark which made its diſtinction. The origin of ſyſtematical diſtribution was the ſelecting ſome part of a plant, which was obvious and regular in itſelf, and eſtabliſhing a character upon its deſcription, to which all others that had the ſame mark were referred. Thus were formed the characters of claſſes firſt, and then the diſtinctive mark of the genera. Between theſe there came naturally ſome leſſer peculiarity, the ſubdiviſion of the claſſes by orders. The original invention was the choice of ſome one part of the character, and what part that ſhould be was left to diſcretion. The great inventor choſe the ſeeds, which he arranged according to the ſituation of the corculum, or heart of the ſeed, and to its place upon the plant; and upon this baſis he founded the firſt arrangement of plants. Afterwards various parts of plants, and various collections of parts were adopted for the characters of claſſes. One hundred and three years after Cæſalpinus, Moriſon a Briton, entered ſucceſsfully into the ſame path; Ray followed, Knoutius followed Ray, and Herman followed him. Riverius was cotemporary with Knoutius; theſe both wrote in the year 1690, and after four years more followed Tournefort, the greateſt of them all. Thus cloſed upon the ſcience the ſeventeenth century, in the laſt ſeventeen years of which the long neglected inſtitution of Cæſalpinus was ſo well revived, that there appeared no leſs than ſix diſtinct ſyſtems of plants and each of very conſiderable merit. The authors of the four firſt held the fruits and ſeed, according to the original practice of Cæſalpinus, to be the propereſt, at leaſt the moſt eſſential parts, on which to found a ſyſtem. Riverius ſtruck out the deſign of fixing the characters in the flower, and Tournefort purſued this with the greateſt attention, induſtry, and truth. Boerhaave, who wrote in the beginning of the 18th century continued the ſyſtem in its original courſe, making the fruits and ſeeds of plants his great object in their arrangement. In 1711, Hencher of Wirtenberg appeared with credit, and led a long train; who leſs regarding the original object of diſtinction, followed Riverius and Tournefort in the choice of the flower. Seven years after, Ruppius wrote, adopting the ſame part as the foundation of his ſyſtem, and thus continued the eſtabliſhed doctrine with Pontedera, Hebenſtret, and Hudwig. In the mean time Magnal diſtinguiſhed himſelf by a new ſyſtem, formed upon the conſtruction of the cup; and in the year 1735 Linnæus, too great for praiſe, publiſhed that ſyſtem of Botany, which characterizes the claſſes according to the parts of generation or fructification, the filaments, and ſtyle; and takes into the general diſtinction all the flower.

BOXTHORN, *Lycium*, a genus of plants ranged by Linnæus among the *pentandria monogynia*, and of which there are three ſpecies.

1. Lycium, with linear leaves. 2. Lycium, with ſpear-ſhaped, thick leaves, and bifid cups. 3. Lycium, with wedge-ſhaped leaves.

Theſe are ſhrubby plants. The firſt ſpecies is a native of Africa, and is propagated by ſeeds or cuttings. The ſeeds ſhould be ſown in autumn, ſoon after they are ripe; and if they are ſown in pots, they ſhould be plunged in ſome old tan in the winter, and in a very ſevere froſt covered with peaſe-haulm, or ſtraw. In the ſpring the pots ſhould be plunged into a moderate hot-bed, which will bring up the plants: as ſoon as the froſts are over, they ſhould be inured to bear the open air: when they are three inches high, let them be ſhaken out of the pots, and each planted in a ſeparate pot filled with loamy earth, and placed in the ſhade, till it has taken new root, after which it may be removed to a ſheltered ſituation where it may remain till autumn; then the plants ſhould be either put into the green-houſe or placed under a hot-bed frame, to ſhelter them from hard froſt; when they have gathered ſtrength, a few of them may be planted in the full ground in a warm ſituation where they will live in moderate winters, but in hard froſts they are commonly deſtroyed. If the cuttings of theſe plants are planted in a ſhady border, in July, and duly watered they will take root; after which they may be treated like the ſeedling plants. The ſecond ſpecies is a native of Aſia and Africa. The third grows naturally in the ſouth of Europe; both ſorts may be propagated in the manner directed in the firſt ſpecies.

BOX-TREE, *Buxus*, a genus of plants ranged by Linnæus among the *monoecia tetandria*, and of which there is but only one ſpecies with two or three varieties.

The beſt method of propagating this tree is by cuttings, which ſhould be planted in autumn in a ſhady border, and kept watered till they have taken root, in October they may be tranſplanted into nurſeries. It may be alſo propagated by laying down the branches, or from ſeeds, which ſhould be ſown ſoon after they are ripe in a ſhady border.

BRACTEA, a floral leaf, ſuch as is found to accompany the fructification of ſome plants; and may be diſtinguiſhed from a calyx, by the calyx always withering when the fruit is ripe, but the Bractea will remain longer. In many plants there are found green leaves among the flowers, that differ in ſhape from the ordinary leaves of the plant; theſe are the Bractea or floral leaves, which are commonly ſituated on the flower-ſtalks, and ſometimes ſo near the flower, as to be miſtaken for its calyx.

BRAMBLE, *Rubus*, a genus of plants, placed by Linnæus among the *icoſandria polygynia*, and of which there are ten ſpecies, but the following only is cultivated in gardens, except the Raſberry, which will be deſcribed under its proper article. See RASBERRY.

Bramble, with prickly ſtems and foot-ſtalk, with leaves digitated in fives, and in threes, or the Double-bloſſomed Bramble.

The root is long and ſpreading, the ſtem weak, purpliſh, and drooping, and the foot-ſtalks are equally beſet with thorns. A number of boughs generally riſe together, and ſpread themſelves every way: theſe droop with their own weight, and ſo full of life is the ſhrub, that when they find a favourable ſoil, they will root again at the head, and thence ſend out new ſhoots, which, if left to nature, root at their heads again.

Three, or five leaves, adhere to one common foot-ſtalk, they are oblong, conſiderably broad, of a deep green on the upper ſide, and whitiſh underneath; the flowers terminate the ſtalks and branches, they alſo riſe in numbers from the boſoms of the leaves, are numerous, and very elegant; ſo many diminutive roſes, round full of petals, white, with a delicate bluſh of crimſon, and very regularly formed.

Culture of the Double BRAMBLE.

No great care is neceſſary to make the rude ſhrub of a hedge live in good ground; one great advantage attends this plant, that with all its elegance, it will live where other ſhrubs would come to nothing. As to its propagation, it muſt be by layers: theſe will ſoon take root. One year after laying, they may be taken up, and planted in the places choſe for them, they ſhould be watered till the roots have ſhot the fibres into the new mould, after which nothing can hurt them. Allow them room to ſpread, and obſerve to take off their ſuckers in autumn, or they will hurt the original plants.

BRANCH, the diviſion of a ſtalk, in trees it is called a bough.

BROCOLI, an Italian name for a ſpecies of the *Cabbage*, or *Braſſica*, of which there are two ſorts, the white, and the purple, or green.

Culture of the BROCOLI.

About the middle of May ſow the ſeeds of the Brocoli in a looſe moiſt ſoil; if the weather proves dry, the bed muſt be well watered; when the young plants have put out about eight leaves each, they muſt be tranſplanted: ſet them at three inches diſtance, and let them remain till the middle of July; when taking, if poſſible, the advantage of moiſt weather, they may be planted out in rows, where they are to remain; allow the diſtance of three feet between each row, and plant them two feet from each other; give them a gentle watering as ſoon as they are planted, and if the weather ſhould prove dry, repeat the waterings once in two or three days, till the plants have all taken root. The ſoil in which they are to be planted, ought to be rich, and rather light than otherwiſe.

Towards the end of December, if the weather is not ſevere, they will begin to ſhew their heads, which, eſpecially at their firſt appearance, are not unlike Cauliflowers. When the heads divide, and begin to run up, they muſt be cut, with four or five inches of the ſtem to them; in about a month a great number of ſprouts, or ſide-ſhoots, produced from the ſame ſtalk, will ſucceed them; theſe will continue fit for eating till April, and though they are not ſo large as the former, they are equal, if not ſuperior in flavour.

In order to ſave good ſeeds of Brocoli, a few of the largeſt heads ſhould be reſerved; obſerve to ſtrip off the ſide-ſhoots, leaving only the principal head to flower, and be particularly cautious not to let any other plant of the ſame genus be near them at the time they are in flower, as the mixing of the farina will occaſion a degeneracy. If this practiſe is duly obſerved, the ſeeds may be preſerved in perfection many years.

There is a third ſort of Brocoli, called the brown, or black Brocoli, but it is much inferior in flavour to the former, all that can be ſaid in its favour, is, that being a hardier ſort, it will bear the ſeverity of the winter better, and is on that account a good ſubſtitute, when the other ſorts have failed.

This ſort grows very tall, the earth ſhould therefore be drawn up to their ſtems as they advance in height; this does not form heads ſo perfect as the Italian Brocoli, the ſtems and hearts of the plants, being the parts which are eaten.

BROOM, *Geniſta*, a genus of plants, ranged by Linnæus among the *decandria diadelphia*, and of which there are nine ſpecies; 1. Broom, with trifoliate leaves, uſually called Canary Cytiſus. 2. Broom, with jointed branches, looking both ways, and oval, ſpear-ſhaped leaves, or Dutch Arrow Broom. 3. Broom, with three cornered, jointed branches, and leaves ending in three points, or ſhrubby Portugal Dyers Broom. 4. Broom, with ſpear-ſhaped leaves, and taper, ſtriated, erect branches, or common Dyers Broom, or Wood-Waxen. 5. Broom, with obtuſe, ſpear-ſhaped leaves, and a declining ſtalk, with tubercles. 6. Broom, with ſingle ſpines, flower branches without ſpines, and ſpear-ſhaped leaves, or ſmall Engliſh Broom, called Petty Whin. 7. Broom, with compound ſpines, flower branches not prickly, and ſpear ſhaped leaves. 8. Broom, with decompounded ſpines, flower branches without ſpines, and narrow, hairy leaves. 9. Broom, with a ſtalk without leaves, and decuſſated ſpines.

Culture of the BROOM.

The firſt and laſt ſpecies are natives of Spain, Portugal, and the Canaries, they thrive beſt in a light ſoil, that is not too rich. They will grow very well from layers, but the moſt elegant ſhrubs are to be raiſed from ſeeds, and this requires little trouble; let ſome well-ripened ſeeds be ſaved in autumn, and the following ſpring ſown on a moderate hot-bed; when they come up, thin them a little, water them carefully, and when they are three inches high, let them be planted ſeparately, in pots of freſh paſture-earth: let theſe be ſet up to the rim in a bark-bed, where the heat is but moderate, and carefully watered, covering the glaſſes with mats, againſt the full power of the ſun.

By degrees let them be hardened, and towards the end of July bring them out into the open air. In October remove them into the green-houſe, and throughout the winter let them have a good deal of water, and as much air as can be admitted. When they are conſiderably encreaſed in ſize, they muſt be removed into larger pots, ſet them out in ſummer, and houſe them in winter: thus they will flower moſt part of the year.

The reſt of theſe ſpecies are natives of different parts of Europe, and are hardy plants, which will grow in almoſt any ſoil or ſituation.

BRYONY, *Bryonia*, a genus of plants, ranged by Linnæus among the *monoecia ſyngeneſia*, and of which there are ſix ſpecies.

1. Bryonia, with palmated leaves, rough, and callous on both ſides. 2. Bryonia, with ſmooth, palmated leaves, cut into five ſpear-ſhaped, ſpreading, ſawed ſegments. 3. Bryonia, with heart-ſhaped, oblong, five cornered, indented, rough leaves. 4. Bryonia, with palmated, rough leaves, ſmooth on both ſides, and winged ſegments. 5. Bryonia with palmated leaves, ſmooth on both ſides, and winged ſegments. 6. Bryonia, with palmated leaves, callous, and ſpotted on the upper ſide.

The firſt ſpecies is a perennial plant, which grows naturally in the hedges throughout Europe, and may be propagated by ſowing the berries upon a dry poor ſoil in the ſpring. The ſecond and fourth ſpecies are natives of Ceylon, and the fifth of Africa: Theſe are alſo perennial plants, and may be propagated by parting the roots, and planting them ſeparately in pots filled with light freſh earth, and in the winter placed in a green-houſe, to be protected from the froſt. The third ſpecies grows naturally in the iſland of Ceylon; and the ſixth in Crete: theſe are annual plants, and are propagated by ſowing the berries early in the ſpring on a hot-bed. When the plants will bear it, they ſhould be tranſplanted each into a ſmall pot, filled with light freſh earth, and plunged into a hot-bed of tanners bark, obſerving to water and ſhade the plants till they have taken root; they ſhould afterwards be inured to the open air, where they may remain during the ſummer; but in winter they muſt be ſhaded from the cold.

BUGLOSS, *Anchuſa*, a genus of plants ranged by Linnæus among the *pentandria monogynia*; it comprehends the Anchuſa, ſtrictly ſo called, or Alkanet, and the Bugloſſum or Bugloſs; of this genus there are ſix ſpecies. 1. Bugloſs with ſpear-ſhaped leaves, and imbricated fruitful ſpikes. 2. Bugloſs with conjugated and nearly naked bunches. 3. Bugloſs with narrow indented leaves, foot-ſtalks to the branches, and ſwelling cups over the ſeeds. 4. Bugloſs with branches and wings growing alternately from the wings of the ſtalks, and oval branches. 5. Bugloſs with flowers growing thinly, and a ſmooth ſtalk. 6. Bugloſs with two leaves growing in heads upon foot-ſtalks.

Culture of the BUGLOSS.

They are all perennial plants: the firſt ſpecies is a native of moſt countries in Europe. The ſecond grows naturally in Italy and Germany. The third in Spain and Portugal. The fourth in the Levant. The fifth in Virginia. The ſixth in England, and with the third ſpecies in Spain.

The plants are propagated by ſeeds. In ſpring, or autumn, ſow them upon a bed of light ſandy earth, and when the plants are ſtrong enough to be removed, tranſplant them into borders, allowing two feet diſtance between each plant. If the ſeaſon is dry give them gentle waterings till they have taken root, then obſerve to keep them clear from weeds, which is all the care they require.

BULBS, or *Bulbous Roots*, a name given by botaniſts to ſuch roots of plants as are nearly round, compoſed of ſeveral ſkins or coats laid one over another, ſending forth from its lower parts a great number of fibres; ſuch are the roots of the common Onion, the Daffodil, the Hyacinth, and thoſe of ſeveral other plants. Modern botaniſts diſtinguiſh two kinds of Bulbs, tunicated and ſquammous; tunicated Bulbs are thoſe compoſed of ſeveral coats or bulbs laid over one another; ſuch are the roots of the Onion, Tulip, and Jonquil; and ſquammous Bulbs are thoſe compoſed of ſeveral ſcales laid in like manner over each other; ſuch as the root of the white Lily.

BULBOCODIUM, a genus of plants of which there is no Engliſh name, ranged by Linnæus among the *hexandria monogynia*, and of which there are only two ſpecies.

1. Bolbocodium with ſpear-ſhaped leaves, by ſome authors called Spaniſh Spring Meadow Saffron. 2. Bulbocodium with narrow awl-ſhaped leaves.

Theſe are perennial plants, the firſt is a native of Spain, and the ſecond of the mountains of England and Switzerland. They have bulbous roots, and are propagated by off-ſets in the manner of other bulbous rooted flowers. They ſhould be removed when their roots decay; and, not oftener than every three years; the firſt ſpecies ſhould have a ſouth border; but the ſecond requires an eaſtern aſpect. They ſucceed beſt in a freſh loamy ſoil, but not dunged. They may be alſo propagated by ſeeds, which ſhould be ſown in pots filled with freſh loamy earth in September or October. Let the pots be placed under a frame, to protect them from ſevere froſts; and in the ſpring when the plants are come up, they ſhould be removed, and placed ſo as to have the morning ſun. In dry weather let them be refreſhed with water, while their leaves continue green; but when theſe decay, the pots ſhould be removed to a ſhady ſituation, and there remain till autumn, keeping them clean from weeds. In October let the pots be ſheltered as before, and in the following ſpring they muſt be treated in the ſame manner as the former year, till their leaves decay; then the roots ſhould be taken up and tranſplanted into the borders of the flower-garden.

BUNIAS, a genus of plants ranged by Linnæus among the *tetradynamia ſiliquoſa*, it has no Engliſh name. There are four ſpecies. 1. Bunias with two a horned divaricated pod, prickly at the baſe. 2. Bunias with a four-cornered pod, and the angles doubly creſted. 3. Bunias with oval gibbous pods, marked with protuberances. 4. Bunias with oval ſmooth pods, ſtanding on each ſide of the ſtalk.

The firſt ſpecies is a native of Siberia, the ſecond grows naturally about Montpelier in France, the third in Ruſſia, and the fourth is a native of the maritime parts of Europe, Africa, and America. The firſt, ſecond and fourth are annual plants, and the third has a perennial root. They may all be propagated by ſeeds, which ſhould be ſown ſoon after they are ripe, in the places where the plants are deſigned to remain. When the plants are come up, they ſhould be thinned to the diſtance of two feet, after which they will require no other care but to be kept clean from weeds.

BURNET, *Poterium*, a genus of plants ranged by Linnæus among the *monoecia polyandria*, and of which there are three ſpecies. 1. Unarmed Burnet with angular ſtalks. 2. Unarmed Burnet, with narrow, taper ſtalks. 3. Burnet with branching ſpines.

Culture of BURNET.

The firſt ſpecies grows naturally in many parts of England. Its tender leaves are put into ſallads, and cool tankards. The ſecond is a native of the ſouthern parts of Europe. Both ſorts are perennial plants, and eaſily propagated by ſowing their ſeeds in autumn.

The third ſort is a native of Crete, and is too tender to live through the winter in the open air of our climate, it ſhould therefore be ſheltered under a common hot-bed frame; and when the weather is mild admit the free air. It is propagated by ſlips or cuttings during any of the ſummer months.

BURNET *Sanguiſorba*, a genus of plants claſſed by Linnæus among the *tetandria monogynia*, and of which there are only two ſpecies. 1. Burnet with oval ſpikes, or the Greater Burnet. 2. Burnet with very long ſpikes.

Culture of this BURNET.

The firſt ſpecies grows naturally in the meadows in many parts of England. The ſecond is a native of North-America. They have perennial roots, and are very hardy plants; they are propagated by ſowing their ſeeds in autumn. When the plants are come up, they muſt be kept clear from weeds till they are fit to be tranſplanted, when they ſhould be removed into a ſhady border, and planted at the diſtance of ſix inches every way; water them gently till they have taken freſh root. In autumn they may be removed to the place where they are deſigned to remain.

BURNING THORNY PLANT, *Euphorbium*, a genus of plants claſſed by Linnæus among the *dodecandria trygynia*, and of which there are no leſs than fifty-ſix different ſpecies, too great a number for a particular deſcription, indeed many of them being common weeds in this country are not worthy of it. Several ſpecies are natives of India and other warm countries, and theſe are often propagated by the curious.

Culture of the BURNING THORNY PLANT.

Some ſpecies of theſe plants are annual, ſome ſhrubby, and others perennial. The proper ſoil for them is a compoſt made of one half ſea-ſand, one quarter light freſh earth, and one quarter lime-rubbiſh. This ſhould be mixed three months before it is wanted for uſe, and turned very frequently. Theſe plants are propagated by cuttings, which ſhould be taken off from another plant at a joint, and laid in a dry ſhady place for a week, that the part cut from the old plant may have time to harden; this ſhould be done in June or July; fill ſome very ſmall pots with the above compoſt, and ſet one of the cuttings in each pot, give them a little water to ſettle their roots. Set them for a day or two where they may have the advantage of the morning ſun, then plunge them into a hot-bed of tanners-bark, and ſhade them in the heat of the day.

Theſe plants being replete with a milky juice, require very little water. In ſix weeks after planting they will have taken root, and are then to be treated as other ſucculent plants of the ſame kind.

C.

CABBAGE, *Braſſica*, a genus of plants ranged by Linnæus among the *tetradynamia ſiliquoſa*, which comprehends Cabbage, ſtrictly ſo called, or Braſſica, Turnep or Rapa, Rocket or Eruca, Navew or Nagus; according to former botaniſts four diſtinct genera.

Culture of the CABBAGE.

The ſeveral ſorts of this plant cultivated in our gardens, are the common white and red Cabbages, the Ruſſian Cabbage, the Batterſea and Sugar Loaf Cabbages, the Savoy Cabbage, the Boreecole, the Cauliflower, the Brocoli, and a few others. For the two latter ſee their reſpective articles.

The common white, red, flat, and long-ſided Cabbages, are chiefly for winter uſe. In the middle of March ſow the ſeeds of theſe ſorts in beds of good freſh earth; in April plant out into ſhady borders, and about the middle of May tranſplant them to the places where they are to remain. Water them at times, be careful that the earth is hoed up about their roots, and keep them clear from weeds. Theſe Cabbages will be fit for the table ſoon after Michaelmas, and, if not deſtroyed by bad weather, will continue till February.

The gardeners about London, pull up their Cabbages in November, and trenching the ground in ridges lay the Cabbages cloſe as poſſible on one ſide againſt thoſe ridges, burying their ſtems in the ground; in this manner they let them remain till after Chriſtmas, when they cut them for market. This is a good method of ſecuring them from the effects of bad weather.

The Ruſſian Cabbage is to be raiſed in the ſame manner as the above ſorts, but not being ſo large, it may be planted nearer. It is fit for uſe in July. This Cabbage is now very little cultivated.

The early Batterſea and Sugar-loaf Cabbages are ſown for ſummer uſe, and are commonly called Michaelmas Cabbages. The ſeaſon for ſowing theſe is the beginning of July, in an open ſpot of ground. In May and June they begin to turn their leaves for cabbaging, to perfect which they ſhould be tyed about the top with an ozier band.

The Savoy Cabbages are for winter uſe, and muſt be ſown about the beginning of April. Tranſplant them into an open place, allowing two feet diſtance between each plant. They are to be treated as the common Cabbage.

The Borecole may be cultivated in the ſame manner, but muſt be planted only at one foot diſtance; theſe are not fit to cut till the froſts have nipped them.

The method of obtaining good Cabbage-ſeed is as follows: in October chuſe out ſome fair plants, pull them up, and hang them, with the root upwards, in a ſhady place, for three days; then plant them under a warm hedge, burying the whole ſtalk, and half the Cabbage, in the earth. If the winter ſhould prove hard, lay a little ſtraw or peaſe haulm lightly over them, taking it off as often as the weather proves mild, leſt by keeping them too cloſe they ſhould rot. Theſe Cabbages will ſhoot out ſtrongly in the ſpring of the year, and divide into a great number of ſmall branches: it is proper therefore, their ſtems ſhould be ſupported to prevent their being broke off by the wind; and if the weather ſhould be hot and dry when they are in flower, they ſhould be refreſhed with water once a week, ſprinkling it all over the branches, which will greatly promote their ſeeding, and preſerve them from mildew. When the pods begin to change brown, the extreme part of every ſhoot with the pods ſhould be cut off, which will ſtrengthen the ſeeds greatly. When the ſeeds begin to ripen, the gardener ſhould be particularly careful, that the birds do not deſtroy it, for they are very fond of theſe ſeeds. The beſt method to prevent this, is to get a quantity of bird lime, and daub over a parcel of ſlender twigs; faſten theſe at each end to ſtronger ſticks, place them near the upper part of the ſeed, in different places, ſo that the birds may alight upon them, by which means they will be faſtened thereto; where you muſt let them remain, if they cannot get off themſelves; if there ſhould be no more than two birds caught, it will ſufficiently terrify the reſt, and they will not come to that place again for a conſiderable time. When the ſeeds are quite ripe, cut them off, and after drying, threſh them out, and preſerve them in bags for uſe.

In planting of Cabbages for ſeed, the gardener ſhould be careful to ſow only one ſort in a place, and by no means plant red and white Cabbages near each other. It is entirely owing to this that there is rarely any good Red Cabbage-ſeed ſaved in England, but we are obliged to procure it from abroad, whereas if they would plant Red Cabbages by themſelves for ſeeds, they might continue the kind as good in England as in any other part of the world.

Sea CABBAGE, *Crambe*, a ſpecies of the *Braſſica*, of which there are five different ſorts. 1. Sea Cabbage with ſmooth ſtalks and leaves. 2. Sea Cabbage with leaves deeply cut, and an upright branching ſtalk. 3. Sea Cabbage with rough leaves and a ſmooth ſtalk. 4. Sea Cabbage with rough ſtalks and leaves. 5. Sea Cabbage with cut leaves, whoſe jags are oppoſite and entire, and ſmooth ſtalks and leaves.

Culture of the SEA CABBAGE.

The firſt of theſe ſpecies ſends out many broad leaves, which are jagged and furbelowed on their ſides, and of a greyiſh colour, their flowers are white, and grow in looſe ſpikes. The roots creep under ground, whereby it propagates very faſt.

This plant is propagated in gardens by ſowing the ſeed ſoon after it is ripe, in a ſandy or gravelly ſoil, where it will thrive exceedingly, and, if encouraged, ſoon overſpread a large ſpot of ground, but the heads will not be fit to cut, until the plants have had one years growth. The beds in which the plants grow, ſhould at Michaelmas be covered over with ſand, or gravel, about four or five inches thick, which will allow a proper depth for the ſhoots to be cut before they appear above ground; which is the method in Suſſex, and Dorſetſhire, where this plant grows wild in great plenty upon the gravelly ſhore, where the tide flows over it, and the inhabitants, obſerving where the gravel is thruſt up by the roots of the plant, open the place, and cut the ſhoots before they come out, and are expoſed to the open air. When they are cut ſo young they are very tender and ſweet; but if they are ſuffered to grow above the ground, they become tough and bitter.

If the beds are gravelled every autumn, the plants will require no other culture.

The other ſpecies are only preſerved in the gardens of the curious, for the ſake of variety, having neither uſe or beauty to recommend them.

CABBAGE-TREE, a ſpecies of the *Palma* or *Palm-tree.* This is a moſt beautiful tree, and common in ſeveral parts of America. It is ſometimes called the Royal Palm Tree, from its remarkable height, majeſtic appearance, and beautiful foliage.

Its roots are innumerable, they are ſmall, but of a great length, and penetrate ſome yards into the earth, eſpecially where the ſoil is ſandy, or otherwiſe porous.

The trunk juts, or bulges out a little near the ground, by which means it hath the appearance of a ſubſtantial baſis, to ſupport its towering height: it is elegantly ſtraight, and ſcarce can a pillar of the niceſt order in architecture be more regular, eſpecially when it is of about thirty years growth; it riſes to the height of one hundred and thirty-four feet.

The trunk of this tree, near the earth, is about ſeven feet in circumference, the whole body growing tapering to the top; the ſubſtance of the tree, for about two or three inches deep, within the bark, is of a blackiſh colour, extremely hard and ſolid: this ſurrounds the inner ſubſtance, which is a whitiſh pith, intermixed with ſome ſmall veins of a more ligneous texture; the colour of the bark much reſembles that of an Aſh-tree, and is very faintly clouded, at the diſtance of about four or five inches, with the veſtigia of the fallen off branches; this colour of the bark continues till within twenty-five or thirty feet of the extremity of the tree, when it alters at once from an Aſh-colour to a beautiful ſea-green, and remains of the ſame colour to the top.

About five feet from the beginning of the green part upwards, the trunk is ſurrounded with numerous branches in a circular manner: all the lower branches ſpread horizontally with great regularity, and the extremities of many of the higher ones bend wavingly downwards, like plumes of feathers; theſe branches when full grown, are near twenty feet in length, and are thickly ſet on the trunk alternately, riſing gradually ſuperior one to another: their broad, curved ſockets ſurround the trunk in ſuch a manner, that the ſight of it is loſt, till it appears again among the uppermoſt branches, and is there enveloped in an upright, green, conic ſpire, which beautifully terminates its greateſt height.

The branches are ſomewhat round underneath, and ſlightly grooved on the upper ſide: they are decorated with a great number of pinnated leaves; ſome of theſe are near three feet long, and an inch and a half broad, growing narrower towards their points, and gradually decreaſing in length at the extremities of the branches; the middle rib, in each leaf, is ſtrong and prominent, ſupporting it on the under ſide, the upper appearing ſmooth and ſhining; the pithy part of the leaf being ſcraped off, the inſide texture appears to be a number of longitudinal, thread-like filaments; theſe being ſpun in the ſame manner as they do hemp, or flax, are uſed in making cordage of every kind, as well as fiſhing-nets, which are eſteemed ſtronger than thoſe uſually made from any other material of the like nature.

It is obſerved that the lowermoſt branch, for the time being, drops monthly from the tree, carrying with it an exfoliated circular lamen of the green part of the tree, from the ſetting on of the branches to the Aſh-coloured part, which is about five feet in length, and in breadth the circumference of the tree at that part; this, and the branch to which it is always fixed, fall together. When the loſs of this lower branch happens, then the green, conic ſpire, which iſſues from among the centre of the uppermoſt branches, and riſes ſuperior to all, partially burſts, and thruſts from its ſide a young branch, which continues the uppermoſt, till another of the lower branches falls off: then the ſpire again ſends forth another branch ſuperior in height to the laſt; ſo that the annual loſs of the branches below, is ſupplied in this ſurpriſing manner by thoſe above.

That part of the tree which is of a green colour, differs from the Aſh coloured part no leſs in ſubſtance than colour, the former, inſtead of being extremely hard on the outſide, and pithy within, is compoſed of ſo many coats, or ſeparate laminæ, of a tough bark-like ſubſtance, of near a quarter of an inch thick, and ſo very cloſely wrapped together, that they jointly compoſe and conſtitute that green part of the tree. As the lowermoſt, as well as each other higher branch, when they ſucceſſively grow to be old, is joined by the broad ſocket of its footſtalk, to this outer coat, lamen, or folding, it is obſervable, that ſome time before the lowermoſt branch is entirely withered, this green circular coat, which to the eye appeared ſome days before to be a ſolid part of the tree, ſlits open lengthways, from the ſetting on of the branches to the Aſh-coloured part beneath, being about five feet in length, and the circumference of the tree in the breadth, and peeling off, it falls with the branch, to which it is joined by many ſtrong cartilages, leaving the next ſucceeding coat to appear for a time as a conſtituent part of the tree, till a ſucceeding withered branch carries this off likewiſe. The ſeveral exfoliations of the green part of this ſtately tree are equal in number to the branches. The firſt, ſecond, third, and ſometimes the fourth of theſe laminæ are green on the outſide, and perfectly white within: all the remaining inner coats, or foldings, are of a bright lemon colour without, and white within. When theſe very tough huſky exfoliations are taken off, what is called the Cabbage, lies in many thin, ſnow-white, brittle flakes, in taſte it reſembles the flavour of an almond, but ſweeter: it is ſo full of oil, that a curious obſerver may ſee ſeveral very ſmall cells abounding with it. Theſe flakes are called, from ſome ſimilarity in the taſte when boiled, Cabbage; it eats agreeably ſweet.

What is called the Cabbage-flower grows from that part of the tree where the Aſh-coloured trunk joins the green part already deſcribed. Its firſt appearance is a green huſky ſpatha, growing to above twenty inches long, and about four abroad; the inſide is full of white, ſtringy filaments, with alternate, protuberant knobs, the ſmalleſt of theſe reſemble a fringe of coarſe, white thread knotted: theſe are very numerous, and take their riſe from larger foot-ſtalks; and theſe footſtalks likewiſe are all united to different parts of the large parent ſtalk. If this huſky ſpatha is opened, while young, a farinaceous, yellow ſeed, reſembling fine ſaw-duſt, is very plentifully diſperſed among theſe ſtringy filaments, theſe filaments being cleared from the duſt, are pickled and eſteemed among the beſt pickles in Europe. But if this ſpatha is ſuffered to continue on the tree till it grows large, and burſts; the incloſed part, which whilſt young and tender, was fit for pickling, will by that time have acquired an additional hardneſs, become ſoon after ligneous, grow buſhy, conſiſting of very ſmall leaves, and in time produce a great number of ſmall, oval, thin-ſhelled nuts, of the ſize of unhuſked coffee-berries. Theſe, being planted, produce young Cabbage-trees.

Culture of the CABBAGE-TREE.

Theſe plants may eaſily be produced from the nuts, before mentioned, provided they are freſh. Sow them in pots filled with light, rich earth, plunge them into a moderate hot-bed of tanners bark, which ſhould be kept in a moderate temperature of heat, and the earth frequently refreſhed with water. When the plants are come up they ſhould be each planted in a ſeparate pot, filled with the ſame rich earth, and plunged into a hot-bed again. The earth ſhould be prepared in the following manner; half light, freſh earth from a paſture ground, and half ſea ſand and rotten dung, or tanner's bark, in equal proportion; theſe ſhould be carefully mixed, and laid in a heap at leaſt four months before it is uſed. It ſhould often be turned over, to prevent the growth of weeds, and to ſweeten the earth.

Be careful to water the plants and to let them have freſh air in proportion to the warmth of the ſeaſon, and the bed in which they are placed.

Whenever theſe plants are removed, which ſhould be done at leaſt once a year, you muſt be very careful not to injure their roots, which is very hurtful to them. They ſhould always be kept in the bark-bed of the ſtove, otherwiſe they will not make any great progreſs in England. When they do thrive, in about twenty years, they grow too tall for any ſtoves which are at preſent built here, and there is very little hope of ever ſeeing them produce their fruit in our climate, but the great beauty of their waving foliage, renders them well worthy our care.

CABBAGING, a term uſed for ſeveral plants, whoſe leaves turn in, and become hard like a Cabbage.

CABINET, in gardening a ſmall building in manner of a ſummer houſe; it is open on all ſides, and forms an agreeable place of retirement for taking the freſh air under cover.

CACTUS, *Melon Thiſtle.* See the article MELON THISTLE.

CALABASH-TREE, *Creſcentia.* Of this tree there are two different ſpecies. 1. Calabaſh-tree with oblong narrow leaves, and a large oval fruit. 2. Broad-leaved Calabaſh-tree, whoſe fruit hath a tender ſhell.

The firſt ſort grows naturally in Jamaica and in all the Leeward Iſlands: this hath a thick trunk, covered with a whitiſh bark, which riſes from twenty to thirty feet high, with ſeveral knots upon the ſtem, dividing at the top into many branches, which ſpread and form a regular head. Theſe are furniſhed with leaves which come out irregularly, and are about ſix inches long, oval, and acuminated; of a livid green colour, with very ſhort foot-ſtalks.

The flowers are produced from the ſides of the branches, ſtanding upon long foot-ſtalks. The fruit is a large ſhell, either ſpherical, oval, or bottle-ſhaped, and incloſes a number of flat cordated ſeeds.

Theſe ſhells are large enough to contain three pints or two quarts of liquid; they are often uſed for drinking cups, and other purpoſes.

The ſecond ſpecies of Calabaſh, is found in Campeachy, which does not riſe ſo high as the former, and the leaves, flowers, and fruit are conſiderably leſs.

Culture of the CALABASH-TREE.

Theſe trees are too tender to live in the open air of our climate, conſequently they require the help of the ſtove. They are eaſily propagated by ſeeds, which, when fully ripe, ſhould be brought over in the fruit. The ſeeds muſt be ſown in the ſpring on a good hot-bed, and when the plants are fit to remove, they ſhould be each ſet into a ſmall halfpenny pot, and plunged into a hot-bed of tanners bark, ſhade them from the ſun till they have taken freſh root; keep them in the tan-bed of the ſtove, and give them but little water in winter. In ſummer they will require to be gently watered two or three times a week, according to the warmth of the ſeaſon, and ſhould have a large ſhare of air admitted to them. Theſe plants may alſo be propagated by cuttings.

CALF'S-SNOUT, a ſpecies of *Antirahinum*, a genus of plants, claſſed by Linnæus among the *didynamia angioſpermia*; it comprehends the Calf's-Snout, ſtrictly ſo called, or Snap-Dragon, the Baſtard-Aſarum, and the Toad-flax.

Of this genus there are twenty-eight ſpecies, too many for a particular deſcription here; we ſhall therefore conſider them in general as divided into the Calf's-Snout, or Snap-Dragon, Baſtard-Aſarum, and Toad-flax.

Culture of the CALF'S-SNOUT.

Moſt ſorts of the Calf's-Snout, or Snap-Dragon, are very beautiful plants, and much eſteemed in gardens, and are all eaſily propagated from ſeeds, which muſt be ſown in a dry ſoil, not too rich, in April or May.

In July the plants may be planted out in large borders, where they will flower the ſpring following; or they may be ſown early in the ſpring, and they will then flower in the next autumn; but then they are not ſo likely to ſtand the winter, and if the autumn prove not kindly, they will hardly produce a perfect ſeed. They all grow very well on old walls, where they have happened to ſow themſelves.

The ſorts of Baſtard-Aſarum may be propagated by ſeeds ſown in autumn, ſoon after they are ripe; when the plants come up, they ſhould be kept clean from weeds, and thinned where they grow too cloſe, which is all the culture they will require. The ſeveral ſorts of Toad-flax cultivated in the gardens, are propagated by ſeeds, which ſhould be ſown in the ſpring on the border of the flower-garden, where the plants are deſigned to remain. When the plants come up they ſhould be kept clean from weeds, and thinned where they grow too cloſe, being all the culture neceſſary for them; or the ſeeds may be ſown in autumn, upon a dry border; and if the plants will live throughout the winter, they will be larger, and flower earlier and ſtronger than thoſe that ariſe from ſeeds ſown in the ſpring.

CALLA, *Arum*. See the article ARUM.

CALAMINT, a ſpecies of Mint. See the article MINT.

CALAMINTH, a ſpecies of Baum. See the article BAUM.

CALAMUS *Aromaticus*. See ACORUS.

CALLICARPA, *Johnſonia*, a genus of plants, ranged by Linnæus among the *tetandria monogynia*, and of which there is but one known ſpecies.

This is a ſhrubby plant, of irregular growth, the root penetrates deep into the earth; the ſtem is covered with a brown bark; the branches, which are very numerous, ſpread irregularly, and are of a pale olive-colour.

The leaves are round, ſmall at their baſe, lightly notched at the edges, and of a pale green; they are placed in pairs, on ſhort foot-ſtalks, and are ſoft to the touch, being covered in a light manner with a whitiſh, woolly ſubſtance. The flowers are placed in cluſters, round the twigs, at the inſertions of the leaves. Their colour is a pale red.

Culture of the CALLICARPA.

It grows naturally in Virginia and Carolina, and will live with very little trouble in our gardens; it is propagated by ſowing the ſeeds, which ſhould be procured from their native places. They muſt be ſown on a bed of freſh earth in a nurſery, and weeded and watered till they are four or five inches in height, at which time they may be either planted out in another bed, or removed at once into the places where they are to remain. They may afterwards be encreaſed by layers, or by cuttings, carefully managed; but either way we would adviſe the gardener to leave them to nature in their form of growth, for they never appear more to advantage than in their wild ſhape.

CALTROPS, *Tribulus*, a genus of plants, ranged by Linnæus among the *decandria monogynia*, and of which there are four ſpecies; 1. Caltrops, with four pair of lobes to each leaf, of which the outer ones are the largeſt. 2. Caltrops, with five pair of almoſt equal lobes to each leaf. 3. Caltrops, with ſix pair of almoſt equal lobes to each leaf. 4. Caltrops, with eight pair of almoſt equal lobes to each leaf.

Culture of the CALTROPS.

Theſe are all annual plants. The firſt is a native of Jamaica, and the ſecond of Ceylon; they are propagated by ſeeds, which ſhould be ſown on a hot-bed early in the ſpring: and when the plants are come up, they muſt be each tranſplanted into a ſeparate pot, filled with rich, light earth, and plunged into a hot-bed of tanners bark, where they ſhould be treated in the ſame manner with other tender exotic plants. The third ſort is a native of the ſouthern parts of Europe, and is propagated by ſeeds, which ſhould be ſown in autumn, on an open bed of freſh light earth. In the ſpring, when the plants come up, let them be carefully cleared from weeds, and thinned where they grow too cloſe; after which they will require no other culture but to be kept clean from weeds: and if their ſeeds are permitted to ſcatter, they will come up the ſpring following, and maintain their place, provided they are not choaked up with weeds. The fourth ſort is a native of the warmeſt parts of America, and may be treated like the firſt and ſecond ſpecies.

CALYPTRA, a thin membranaceous involucrum, uſually of a conic figure, which covers the part of fructification. The capſules of moſt of the moſſes have calyptræ.

CALYX, among botaniſts a general term, expreſſing the cup of flowers, or that part of a plant which ſurrounds, incloſes, or ſupports the other parts of the flower. The cups of flowers are very various in their ſtructure, and are diſtinguiſhed by the names of perianthium involucrum, ſpatha and gluma. Botaniſts diſtinguiſh two ſorts of Calices, one external, called the Calyx of the flower: by the antients perianthium, as encompaſſing the flower and ſeed; the other internal, called the Calyx of the fruit: by the antients pericarpium, as being the capſule which compaſſes the fruit, and is itſelf encompaſſed by the petala. The external Calyx may alſo be divided into two ſorts, one which ſurrounds the flower, another which ſuſtains it, different from the pedicle; as the latter ſpreads itſelf underneath the flower, to give room for the nutritious juice to raiſe more freely; the cavity of the pedicle enlarged, is reputed part of the Calyx both external and internal.

CAMPANIFORM-FLOWER, or CAMPANULATED-FLOWER, a term for flowers reſembling a bell in ſhape, and making the character of Mr. Tournefort's genera; he defines the Campaniform flower to be compoſed of one leaf, and formed in the ſhape of a bell, but with ſome difference in the figure, which conſtitute four ſubordinate ſpecies. 1. The Bell-Flower, ſimply ſo called, which expreſſes no other figure but what is expreſſed by that name. 2. The tubular, narrow kind, which is always conſiderably long. 3. The expanded kind, which opens very wide at the extremity, and repreſents in ſome degree, a diſh or baſon; and 4. The globular Bell flower, the mouth of which is narrower and ſmaller than the belly.

CAMPANULA, *Bell Flower*, a genus of plants, claſſed by Linnæus among the *pentandria monogynia*, and of which there are no leſs than thirty-four diſtinct ſpecies, too great a number for a particular deſcription in this work; many of them, indeed, grow wild in our fields, and, therefore, are not worthy of it, being never admitted into gardens. Thoſe which demand moſt the attention of the curious, are the violet-coloured African Campanula, and the Canary Bell-Flower.

Violet coloured African CAMPANULA.

This plant derives its Engliſh name from the colour of its flowers, which are of a deep blue purple. Linnæus calls it Campanula with rough, indented, ſpear-pointed leaves, with very long footſtalks to the flowers, and ſlender ſeed veſſels. It is a native of the Eaſt Indies, and of the Cape of Good Hope.

It is an annual fibrous rooted plant; the ſtalk is round, a little hairy, tolerably firm, purpliſh near the ground, and of a paler green upwards. The leaves are long, narrow, ſharp-pointed, indented at the edges, of a lively green, and without footſtalks; from theſe riſe numerous branches, from the boſoms of whoſe leaves again riſe others; which gives the plant a moſt beautiful buſhy appearance. The leſſer branches terminate in long ſlender naked twigs, which ſerve as foot-ſtalks to the flowers; and ſome riſe of an equal length with the others, from the upper leaves on the main ſtalks. At the ſummit of each ſtands one flower, very conſpicuous in ſize, ſhape, and colour. It is ſo large, that the tender footſtalk uſually bends with it, and of a bell-like form; its colour, as above-mentioned, is that of the Violet.

Culture of this CAMPANULA.

This elegant plant, in its natural climate, grows in a looſe, but rich ſoil, and ſuch we muſt give it here. It is raiſed from ſeeds, which ſhould always, if poſſible, be obtained from their native place, being much better than thoſe ripened here.

Mix a compoſt for them of equal parts of light earth from a dry paſture, and mud from a pond, with a very ſmall admixture of ſand; one buſhel of this to ſix of the others is ſufficient. Early in ſpring let a heap of this mixed ſoil be prepared; and at the ſame time a hot-bed raiſed for the ſeeds, and covered well with good garden mould. In this let them be ſown, and covered only a quarter of an inch deep. When the plants have acquired a little ſtrength, remove them into another hot-bed, water and ſhade them till they have taken root; let them remain in this till large enough to tranſplanted into pots. For each plant there muſt be a ſeparate pot of a middling ſize; lay ſome ſtones in the bottom to ſecure the opening from being clogged up, and then let it be half filled with the compoſt.

Raiſe the plant with as much of the earth as can be kept about it. Set it upright in the pot, and place more of the compoſt round it; raiſe the earth within an inch of the top of the pot, and then give the plant a gentle watering. Set the pot up to the rim in a bark bed, ſhade and water it at times till rooted; when they are thus well rooted, the air muſt be admitted to them by degrees, by lifting up the glaſſes of the frame with a notched ſtick during the heat of the day; after this has been done for a week, they ſhould be ſet out in the middle of a hot day among the green-houſe plants, at night removed into the green-houſe, and ſet out again the next day. Thus they will be hardened thoroughly, and ſoon after they will bud for flowering. Now water them gently twice a day, and they will produce their firſt flowers towards autumn. Theſe, when they fade, muſt be carefully taken off, otherwiſe they will produce no more good flowers, but by taking them off as they decay, there will be a ſucceſſion for more than two months. If the weather becomes cold early, remove them into the green-houſe, and, if need require it, into the ſtove, where they will continue flowering till the middle of November.

Canary Bell Flower, or CAMPANULA.

Linnæus, as a diſtinction of the ſpecies, calls this beautiful plant, Campanula with ſpear-pointed, and dentated leaves, placed oppoſite on footſtalks, and with five cells in the ſeed-veſſels.

The root is tuberous and hung about with fibres; the ſtalk is round, upright, and riſes to the height of ſix or ſeven feet; it is purpliſh at the bottom, and of a pale green upwards. The leaves riſe two, and ſometimes three at a joint; they are of a beautiful greyiſh green, are diſtant from each other, and from their boſoms generally ſhoot up ſome young ſtalks, which give a very elegant tufted appearance to that part of the plant where they are ſituated. They have long, ſlender, and reddiſh foot-ſtalks, and are of the ſhape of a ſpear-point, with two beards at the bottom, and ſerrated at the edges.

The flowers are large and elegant, their colour is a bright flaming yellow, tinged with red; they hang drooping, and are of the perfect bell-ſhape.

Culture of this CAMPANULA.

The beſt method of propagating this plant is by parting the roots, which may always be had, as there are few gardens without it. When the ſtalks which flowered are decayed, the period of reſt for the roots, they may then be parted without danger. This ſhould be done with a careful hand, and the principal root very lightly touched.

Have the following compoſt ready: take two buſhels of upland paſture ground, one buſhel of wood-earth, and half a buſhel of ſand; mix all theſe well together, and let them be expoſed to the air from November to Midſummer.

Fill as many pots with this compoſt as there are roots for planting, and place each root carefully in the middle of the pot. Cover it two inches with the ſame ſoil, and give them a gentle watering; ſet the pots in a warm ſhady place, and once in four days ſprinkle the mould lightly till they begin to ſhoot; when they are a few inches high, let the waterings be larger and more frequent. In the beginning of September they muſt be ſet among the exotics; and at the approach of cold nights removed into the green-houſe. Thus they will flouriſh perfectly well, and beginning to flower about November, will continue through the whole winter. In March the flowering ſeaſon will be over, and the ſtalks will ſoon after begin to decay; but they riſe again in all their vigour in the beginning of Auguſt, and flower as in the preceding ſeaſon.

CAMPHIRE TREE, a ſpecies of the Bay Tree. See the article BAY TREE.

CAMPION, a ſpecies of a genus of plants better known by the name of Lychnis. See the article LYCHNIS.

Wild CAMPION, *Agroſtema*, commonly called wild Lychnis, a genus of plants claſſed by Linnæus among the *decandria pentangynia*, and of which there are four ſpecies. 1. Hairy Campion, with cups equalling the Corolla, and entire naked petals. 2. Smooth Campion, with narrow ſpear-ſhaped leaves, and coronated petals. 3. Hairy Campion, with oval, jagged leaves, and entire coronated petals. 4. Hairy Campion, with emarginated petals.

Culture of the CAMPION.

The firſt ſpecies grows wild in our corn-fields, and is never cultivated in gardens. The ſecond is a native of Sicily, and is propagated here only for the ſake of variety. They are both annual plants. The third ſpecies is a biennial plant, it grows naturally in Italy, and is propagated by ſeeds, or by parting of the roots. There are two ſorts of it, ſingle, and double, the latter never produces ſeed, it is therefore propagated by parting of the roots in autumn, which ſhould be planted in a border of freſh undunged earth, at the diſtance of half a foot from each other. Let them be watered from time to time till they have taken root, and in ſpring tranſplant them into the borders of the flower-garden. The fourth ſpecies is a native of Switzerland, and is propagated by ſeed, which ſhould be ſown in a moiſt ſoil, and a ſhady ſituation.

CANDY TUFT, *Iberis*, or *Sciatica creſs*, a genus of plants claſſed by Linnæus among the *tetradynamia ſiliculoſa*, and of which there are nine ſpecies. 1. Shrubby Candy Tuft, with entire wedge-ſhaped, blunt leaves, commonly called Tree Candy Tuft. 2. Shrubby Candy Tuft with narrow, acute, entire leaves, commonly called perennial Candy Tuft. 3. Shrubby Candy Tuft, with leaves indented at the top. 4. Candy Tuft, with roundiſh crenated leaves. 5. Candy Tuft, with ſpear-ſhaped, pointed leaves, the under ones ſawed, and the upper entire, commonly called Candy Tuft. 6. Candy Tuft, with ſpear-ſhaped, undivided leaves, and hemiſpheric carymbuſſes. 7. Candy Tuft, with acute, ſpear-ſhaped, indented leaves, and flowers growing in bunches. 8. Candy Tuft, with narrow leaves, dilated and ſawed at their top. 9. Candy Tuft, with ſinuated leaves, and a ſingle naked ſtalk, called Rock Creſs.

Culture of the Candy Tuft,

The three firſt ſpecies are ſhrubby plants; the firſt is a native of Sicily and Perſia, and very ſeldom produces ſeeds in this country, but flowers all the winter; it is therefore propagated by cuttings only, which ſhould be planted during ſome of the ſummer months, ſhaded from the ſun, and duly watered; in about two months after, they will be rooted, and then they may be planted in pots, or in the borders where they are deſigned to ſtand. This ſort being ſomewhat tender is generally preſerved in green-houſes in the winter, but in moderate weather it will bear the open air, if planted in a warm ſituation, and a dry ſoil, and covered in very hard froſts with mats, reeds, ſtraw, or peas-haulm. There is a variety of theſe with variegated leaves, preſerved in ſome curious gardens; but this not being ſo hardy as the plain ſort, muſt be treated more tenderly in winter. The ſecond ſpecies is native of Crete, and continues green all the year, and the flowers are of as long duration as thoſe of the firſt ſort; it rarely produces ſeeds in England, and is propagated by ſlips, which in ſummer eaſily take root; and the plants may be treated in the manner directed for the firſt ſort. The third ſpecies is a native of Gibraltar in Spain, and may be propagated like the ſecond ſort. The fourth grows naturally on the Alps, and is a perennial plant, propagated by ſeeds which ſhould be ſown on a ſhady border in autumn, and when the plants are ſtrong enough to be removed, they ſhould be tranſplanted on a ſhady border, where they are deſigned to remain. They will require no other culture but to be kept clean from weeds. The reſt are all annual plants. The ſeeds of the fifth were formerly ſown to make edgings for borders in the pleaſure garden: for this ſort there are two different varieties, one with red, the other with white flowers. As theſe plants will not bear tranſplanting, the ſeeds ſhould be ſown in thin patches, and when the plants are grown pretty ſtorng, they ſhould be ſo thinned as to leave no more than ſix or eight in a patch to flower; they will require no other culture but to be kept clean from weeds. The ſixth ſort is a native of Crete; the ſeventh of Switzerland; theſe require the ſame treatment with the fifth: the eighth is preſerved in botanic gardens, only for the ſake of variety, and may be propagated as has been directed for the fifth ſpecies: the ninth grows naturally on ſandy and rocky places in ſeveral parts of England, and is ſeldom admitted into gardens.

Indian Flowering CANE, a genus of plants ranged by Linnæus among the *monandria monogynia*, and of which there are three ſpecies. 1. Common broad-leaved, Flowering Cane. 2. Indian Flowering Cane, with a pale red flower. 3. Indian Cane, with glaucous leaves, and a very large flower. The firſt ſpecies grows naturally in both Indies: it has a thick, fleſhy, tuberous root, divided into many irregular knobs. It ſends out a number of irregular leaves without any order, they are near a foot long and five inches broad in the middle, leſſening gradually at both ends and terminating in a point. The ſtalks are herbaceous, riſing four feet in height, and are encompaſſed by the broad leafy footſtalks of the leaves; at the upper part of the ſtalk, the flowers are produced in looſe ſpikes, each being at firſt covered by a leafy hood, which afterward ſtands below the flower, and turns to a brown colour. The flower is encompaſſed by a three leaved empalement, which ſits upon a ſmall, roundiſh, rough germen, which after the flower is fallen, ſwells to a large fruit or capſule, oblong, rough, and is crowned by the three leaved empalement of the flower which remains. When the fruit is ripe, the capſule opens lengthways into three cells, which are filled with round, hard, black, ſhining ſeeds.

The ſecond ſort grows naturally in Carolina, and ſome of the other northern provinces of America. The leaves of this ſort are longer than thoſe of the former, and terminate in ſharper points. The ſtalks grow taller and the ſegments of the flower are much narrower; the colour is a pale red, which makes no great appearance. The ſeeds are like thoſe of the former ſort.

The third ſpecies is a native of New Spain. The roots of this are much larger than either of the former ſorts. The ſtalks riſe to the height of ſeven or eight feet; the leaves are near two feet long, narrow, ſmooth, and of a ſea green colour; the flowers, which are large and of a pale yellow colour, are produced in ſhort, thick ſpikes at the extremity; the ſeed-veſſels are larger and much longer than thoſe of the other ſorts, but contain fewer ſeeds, which are very large.

Culture of the Indian Flowering Cane.

All the ſpecies are propagated by ſeeds, which ſhould be ſown in the ſpring on a hot-bed. When the plants are fit to remove, tranſplant them, each into a ſeparate ſmall pot, and plunge them into a moderate hot-bed of tanner's bark; ſhade them till they have taken root after which the air ſhould be freely admitted to them, in warm weather. As theſe plants will make great progreſs in their growth, they muſt be ſhifted into larger pots, and part of them plunged into the hot-bed again, in June the others may be placed abroad in a warm ſituation, among the exotics. Thoſe which are placed in the hot-bed, will be ſtrong enough to flower in the ſtove the following winter; but thoſe in the open air, will not flower till the next ſummer. Theſe may remain abroad till the beginning of October, when they muſt be removed into the ſtove.

The ſecond ſort which is much hardier than the firſt and third, ſhould have a different treatment. The young plants of this muſt be earlier inured to the open air, where they may remain till the froſt begins, then they ſhould be placed in the green-houſe. Give them but little water in winter; in the beginning of May turn them out of the pots, and plant them in a warm ſouth border, in a dry ſoil, where they will thrive and produce flowers annually.

Sugar-CANE, *Saccharum.* There is but one ſpecies of this plant. It is a native of both Indies, and propagated in our gardens as a curioſity, but being too tender to thrive here unleſs it is preſerved in a warm ſtove, it cannot be brought to any perfection.

Culture of the Sugar-Cane.

It is propagated here by ſlips taken from the ſides of the older plants; thoſe which are taken from near the root, and have fibres to them, will moſt certainly grow, ſo that when the ſhoots are produced at ſome diſtance from the ground, the earth ſhould be raiſed about them, that they may put out fibres before they are ſeparated from the mother plant. Theſe ſlips ſhould be planted in ſeparate pots, and plunged into a moderate hot-bed of tanner's bark. Theſe plants muſt always be kept in the tan-bed of the ſtove, and as their roots increaſe in ſize, the plants ſhould from time to time be ſhifted into larger pots; but this muſt be done with caution, for if they are over-potted, they will not thrive; they muſt be watered frequently in warm weather, but it muſt not be given them in too great plenty, and in cold weather, a very ſmall quantity will ſuffice.

As the leaves of the plants decay, they ſhould be cleared from about the ſtalks, for if theſe are left to dry upon them, it will greatly retard their growth. The ſtove in which theſe plants are placed, ſhould be kept in the ſame temperature of heat as for the Pine-apple, and in hot weather the air ſhould be admitted to them freely, otherwiſe they will not thrive.

Dumb-CANE, a ſpecies of the Arum. See the article Arum.

This plant is a native of America, it abounds with an acrid juice, ſo that if a leaf or part of the ſtalk is broke, and applied to the tip of the tongue, it occaſions a very painful ſenſation.

Culture of the Dumb-Cane.

It is propagated by cutting off the ſtalks into lengths of three or four joints, which muſt be laid to dry ſix weeks or two months, that the wounded part may have time to heal before they are planted, otherwiſe they will rot. Fill ſome ſmall pots with light ſandy earth, and plant one cutting in each pot, then plunge them into a moderate hot-bed of tan; be careful that they have little water till they have taken root. Some of them may be placed in a dry ſtove, and others plunged into the tan-bed, in the bark-ſtove, where they will make the greateſt progreſs, and produce more flowers than the others.

BAMBOO-CANE, a ſpecies of the Reed. See Reed.

Fiſhing-rod CANE, a ſpecies of the Reed. See the article Reed.

CANTERBURY-BELL, a ſpecies of the Campanula. See the article Campanula.

CAPER-BEAN. See Bean-caper.

CAPER-BUSH, *Caparis*, a genus of plants of which there are ten ſpecies. 1. Prickly Caper. 2. Smooth Caper, with oval leaves, which remain all the year. 3. Smooth Caper, with oval oblong leaves, growing in cluſters, which continue through the year. 4. Caper, with oval, ſpear-ſhaped leaves, which continue through the year, and a tree-like ſtalk. 5. Caper, with ſpear-ſhaped, veined leaves, which continue through the year, and flowers growing in bunches. 6. Caper, with oval leaves placed oppoſite, which continue through the year, and flowers growing in bunches. 7. Caper, with oblong oval leaves, placed alternate cloſe to the ſtalks, which continue through the year, and flowers growing ſingly from ſides of the branches. 8. Caper, with pointed ſpear-ſhaped leaves, growing in cluſters, which continue through the year, and a ſhrubby ſtalk. 9. Caper, with ſpear-ſhaped leaves placed alternate, on very long foot-ſtalks, and flowers growing in cluſters. 10. Caper, with nervous ſpear-ſhaped leaves, which continue through the year, and three flowers upon each foot-ſtalk.

The firſt is the common Caper, whoſe full grown flower-bud is pickled, and brought to England annually from Italy and the Mediterranean. This is a low ſhrub, which generally grows out of the joints of old walls, the fiſſures of rocks, and amongſt rubbiſh, in moſt of the warm parts of Europe: it hath woody ſtalks, which ſend out many lateral, ſlender branches; under each of theſe are placed two ſhort, crooked ſpines, between which and the branches come out the foot-ſtalk of the leaves, which are ſingle, ſhort, and ſuſtain a round, ſmooth, entire leaf; at the intermediate joints between the branches, come out the flowers upon long foot-ſtalks; before theſe expand, the bud, with the empalement, is gathered for pickling; but thoſe which are left expand, in form of a ſingle Roſe, having five large white petals, which are roundiſh and concave; in the middle are placed a great number of long ſtamina, ſurrounding a ſtyle which riſes above them, and is crowned with an oval germen, which afterward becomes a capſule, filled with kidney-ſhaped ſeeds.

This ſort is cultivated upon old walls about Toulon, and in ſeveral parts of Italy; and Mr. Ray obſerved it growing naturally on the walls and ruins at Rome, Sienna, and Florence.

The ſecond ſort hath weaker ſtalks than the firſt, which are ſmooth, having no ſpines on them; the leaves are oval, ſmooth, in their natural place of growth, continue through the year; but in England the young ſhoots are generally killed in winter; the buds of theſe are not eſteemed ſo good as the firſt for pickling.

The third, fourth, and fifth ſorts, are natives of New Spain; the ſixth, ſeventh, and eighth, of Amemerica, and the ninth and tenth ſorts grow naturally at Carthagena.

The laſt eight ſorts will not live through the winter in England, without the aſſiſtance of a ſtove. They are propagated by ſeeds, which muſt be procured from the places where they grow naturally; theſe muſt be ſown in ſmall pots, and plunged into a hot-bed of tanners-bark. If the ſeeds are good, the plants will appear in about two months, give them a gentle watering, and in warm weather admit the air freely; when they are large enough to remove, they muſt be tranſplanted, each into a ſeparate ſmall pot, and plunged into the hot-bed again, obſerving to ſhade them till they have taken freſh root, after which admit the freſh air every day, in proportion to the warmth of the ſeaſon. In autumn they muſt be removed into the ſtove, and plunged into the bark-bed, where they ſhould conſtantly remain. Theſe plants require but little water, eſpecially during the winter, for the roots are ſubject to rot with wet.

CAPILLAMENT, a term applied to the ſtrings or threads about the roots of plants.

CAPILLARY-PLANTS, are ſuch plants as have no main ſtem, but their leaves riſe from the root, upon pedicles, and produce their ſeeds on the back of their leaves, as the Fern, Maiden-hair, &c.

CAPITATED-PLANTS, a name given to thoſe plants, whoſe ſeeds, with their down, are included in a ſcaly calyx, or cup; of this ſort are the Thiſtle, Artichoke, &c.

CAPITULUM, a little head, the ſame with what is otherwiſe called an Umbel.

CAPSICUM, Guinea Pepper. See the article Guinea-pepper.

CAPSULATED-PLANTS, ſuch as produce their ſeeds in capſules.

CAPSULE, a ſpecies of Pericarpium, compoſed of ſeveral dry elaſtic valves, which uſually burſt open at the points; this kind of Pericarpium contains only one cell, or cavity, ſometimes more. In the firſt caſe it is called unilocular, in the ſecond, bilocular, trilocular, or multilocular, that is, containing one cell, two cells, three cells, or many cells, according to the number of cells in it made for the reception of the ſeeds.

CARAWAY, *Carum*, a genus of plants, ranged by Linnæus among the *pentandria digynia*, and of which there is only one ſpecies.

Culture of the CARAWAY.

It is a biennial plant, and grows naturally in ſeveral parts of England, and in moſt of the northern parts of Europe, it is propagated by ſeeds, which ſhould be ſown ſoon after they are ripe. When the plants are come up, the ground ſhould be hoed, to deſtroy the weeds, and the plants thinned where they grow too cloſe, leaving them three or four inches apart. The following ſpring they muſt be hoed twice more, which will keep the ground clean till the ſeeds are ripe: then the ſtalks muſt be pulled up, and tied in bundles, ſetting them upright to dry, then the ſeeds may be threſhed out for uſe.

CARINA, or KEEL. See the article Papilionaceous.

CARDINAL-FLOWER, a genus of plants, of which there are ten ſpecies. 1. Cardinal-Flower, with an erect ſtalk, ſpear-ſhaped, ſawed leaves, and a ſpike of flowers, terminating the ſtalk, commonly called Scarlet Cardinal-Flower. 2. Cardinal-Flower, with an erect ſtalk, linear, ſpear-ſhaped, entire, acute-pointed leaves, and a ſpike of flowers terminating the ſtalk. 3. Cardinal-Flower, with an erect ſtalk, oval, ſpear-ſhaped, crenated leaves, and the ſinuſes of the empalements reflexed, commonly called the Blue Cardinal-Flower. 4. Cardinal-Flower, with an erect ſtalk, heart-ſhaped leaves, which are ſomewhat indented, having foot-ſtalks, and the longeſt ſpike of flowers, which are placed thinly. 5. Cardinal-Flower, with an erect ſtalk, the lower leaves roundiſh and crenated; the upper ſpear-ſhaped, ſawed, and a ſpike of flowers terminating the ſtalk. 6. Cardinal-Flower, with an erect ſtalk, oval leaves, which are ſomewhat ſawed, longer than the foot-ſtalk, and ſwelling ſeed-veſſels. 7. Cardinal-Flower, with oval, crenated leaves, which are downy, and flowers growing ſingly from the ſides of the ſtalk. 8. Cardinal-Flower, with ſpear-ſhaped, indented leaves, very ſhort foot-ſtalks to the flowers, which proceed from the ſides of the ſtalks, and a very long tube to the petal. 9. Cardinal-Flower, with a ſpreading, branching ſtalk, ſpear-ſhaped leaves, which are ſomewhat indented, and very long foot-ſtalks to the flowers. 10. Cardinal-Flower, with trailing ſtalks, ſpear-ſhaped, ſawed leaves, and foot-ſtalks proceeding from their ſides.

The firſt ſort grows naturally by the ſide of rivers and ditches in great part of North America, but has been many years cultivated in the European gardens for the great beauty of its ſcarlet flowers. The root is compoſed of many white fleſhy fibres; the lower leaves are oblong, a little ſawed, and of a dark purpliſh colour on their upper ſide; the ſtalks are erect, and riſe about a foot and a half high, garniſhed with ſpear-ſhaped leaves, ſawed on their edges, having very ſhort foot-ſtalks, and are placed alternately; the ſtalk is terminated by a ſpike of flowers of an exceeding beautiful ſcarlet colour; theſe have a pretty long tube, which is a little incurved, but at the top is cut longitudinally into five ſegments; the three upper, which are the ſmalleſt, are greatly reflexed; the three under, which form the lower lip, are larger, and ſpread open.

The ſecond ſort grows naturally at Campeachy, and this hath a fibrous root like the firſt. The ſtalks are much larger, and riſe a foot higher; they are cloſely garniſhed with leaves, which are long, ſmooth, and entire, ending in acute points, and are terminated by ſhort ſpikes of flowers, which are larger than thoſe of the firſt ſort, but are of the ſame beautiful ſcarlet colour.

The third ſort is a native of Virginia, but has been long an inhabitant of the Engliſh gardens; this hath a perennial fibrous root, the leaves are ſmooth, oval, ſpear-ſhaped, and a little indented on their edges; the ſtalks riſe a foot and a half high, garniſhed with leaves like thoſe of the bottom, which are gradually ſmaller to the top, ſitting cloſe to the ſtalk. The flowers come out from the wings of the leaves, they are of a pale blue colour, and have large empalements, whoſe edges are reflexed.

The fourth ſort grows naturally in Jamaica; this is an annual plant; the ſtalk riſes a foot high, then divides into four or five ſmaller, which grow erect. The lower part is garniſhed with heart-ſhaped ſmooth leaves, having ſmall indentures on their borders, and ſtand upon ſhort foot-ſtalks. The upper ſlender ſtalks are thinly garniſhed with ſmall purpliſh flowers to the top, and are ſucceeded by ſmall ſeed-veſſels, which ripen in autumn.

The fifth ſort grows naturally in the foreſts about Blois in France; this is an annual plant. The fixth ſpecies is a native of North America, this is a biennial plant in England, which rarely flowers the ſame year as the plant comes up, but decays ſoon after the ſeeds are ripe.

The ſeventh ſort is a native of the Cape of Good Hope, this is likewiſe a biennial plant.

The eighth ſpecies grows naturally in moiſt places on moſt of the iſlands of the Weſt Indies. It is alſo a biennial plant.

The ninth and tenth ſorts are, like the ſeventh, natives of the Cape of Good Hope; but they are annual plants.

Culture of the CARDINAL FLOWER.

The firſt ſpecies is propagated by ſeeds, which when they are ripened in England, ſhould be ſown in autumn in pots, and placed under a common hot-bed frame; or, if the ſeeds come from the country where the plants grow naturally, they ſhould be ſown in the ſame way as ſoon as they arrive, for if they are kept out of the ground till ſpring, they will lie a year in the ground before they vegetate. The pots in which theſe ſeeds are ſown, ſhould be expoſed to the open air, at all times, when the weather is mild, but they muſt be ſcreened from the froſt, and very hard rain in winter. In the ſpring the plants will appear, when they ſhould have as much free air as poſſible in mild weather, and, if the ſpring proves dry, they muſt be frequently refreſhed with water. As ſoon as they are fit to remove, they ſhould each be planted in a ſeparate ſmall pot, and placed in the ſhade till they have taken freſh root, after which ſet them where they may have the morning ſun, in which ſituation they may remain till autumn. In hot dry weather they ſhould be conſtantly watered, and when the roots have filled the pots, they muſt be tranſplanted into larger. In autumn they muſt be placed under a common frame, to ſhelter them from hard froſt, but when the weather is mild admit the open air. The ſpring following they ſhould be ſhifted into other pots, and placed where they may have the morning ſun, being careful to give them gentle waterings in dry weather, which will cauſe their ſtalks to be ſtronger, and produce larger ſpikes of flowers, which will continue long in beauty if they are not too much expoſed to the ſun; and if the autumn proves warm, the ſeeds will ripen well in England.

The ſecond ſpecies is propagated by ſeeds in the ſame manner as the firſt, but the plants not being ſo hardy, require to be placed in a moderate ſtove in winter, and in ſummer they ſhould be ſet in a deep frame, where they may be covered with glaſſes in bad weather, admitting the air at all times when the weather will permit.

The third ſort is propagated in the ſame manner as the firſt, and the plants require the ſame culture.

When the ſeeds of the fourth ſpecies are permitted to ſcatter on the pots which ſtand near them, and thoſe are ſheltered from the froſt, the plants will come up plentifully the ſpring following; or, if they are ſown in pots in autumn, and ſheltered in the winter, the plants will riſe the following ſpring, and theſe ſhould be tranſplanted into ſeparate ſmall pots, and placed under a frame, where they will flower in June and July, and their ſeeds will ripen in September, when the plants will decay.

The ſeeds of the fifth ſpecies ſhould be ſown in autumn, in pots filled with loamy earth, and placed under a hot-bed frame in winter, and when the plants come up in the ſpring, they ſhould be tranſplanted either into a border of ſoft loamy earth, or into ſeparate pots, ſhading them till they have taken new root, afterwards they muſt be conſtantly watered in dry weather, which will cauſe them to flower ſtrong, and produce good ſeeds annually.

The ſixth ſort is propagated by ſeeds, which ſhould be ſown in autumn, in pots filled with rich earth, and treated in the ſame manner as the firſt ſort.

The ſeventh ſort may likewiſe be cultivated in the ſame manner as the firſt.

The ſeeds of the eighth ſpecies ſhould be ſown ſoon after it is ripe in pots filled with rich earth, and plunged into the tan-bed in the ſtove. In the ſpring theſe pots may be removed and plunged into a hot-bed, which will ſoon bring up the plants; when theſe are fit to remove, they ſhould be tranſplanted each into a ſeparate ſmall pot, and plunged into a freſh hot-bed, ſhading them from the ſun till they have taken new root; then they may be treated in the ſame way as other tender plants from the ſame country, giving them a large ſhare of air in warm weather. In autumn the plants muſt be plunged into the tan-bed of the ſtove, where they will flower the following ſummer, and produce ripe ſeeds, ſoon after which the plants will decay.

The ſeeds of the ninth and tenth ſpecies muſt be ſown in autumn in pots, and ſheltered under a common hot-bed frame in winter; in mild weather expoſe them to the open air, and carefully ſhelter them from the froſt; and in the ſpring the pots ſhould be plunged into a moderate hot-bed, which will ſoon bring up the plants; when theſe are fit to remove, they ſhould each be planted in a ſeparate ſmall pot, and again plunged into a moderate hot-bed, ſhading them from the ſun till they have taken freſh root; then admit the air freely, when the weather is mild, and as the plants grow ſtrong they ſhould be gradually inured to the open air, into which they muſt be removed in June, placing them in a ſheltered ſituation, where they will flower in July; and if the ſeaſon proves favourable, the ſeeds will ripen in September; but if the ſeaſon ſhould prove cold, it will be proper to remove one or two plants into a glaſs-caſe to obtain good ſeeds.

CARNATION, a beautiful tribe of flowers conſidered by Linnæus as a ſpecies of the Dianthus, which comprehends the Clove Gilli-flower, or July-flower, and the Carnation Pink, which we ſhall conſider diſtinctly. The ſame author has claſſed them among the *decandria dygynia*, and enumerated fifteen ſpecies.

Theſe flowers are either ſingle or double, but the latter only are regarded by floriſts, nor even theſe except they have particular appearances to recommend them.

The principal properties in a good Carnation are as follow: 1. The ſtem of the flower ſhould be ſtrong and able to ſupport the weight of the flower, without lopping down. 2. The petals (or leaves) of the flower ſhould be large, broad, ſtiff, laying flat, without any indentures on their edges; ariſing from the extremity to the centre regularly, ſo as to form the whole as nearly hemiſpherical as poſſible. 3. The pod ſhould be cylindrical, neither too ſhort nor too long, for if it is too ſhort the extreme petals will fall down and much diminiſh the beauty of the flower, and if too long, the flower will be contracted, which is diſagreeable to a curious eye: it is alſo eſteemed a good property if the flower expands without the pod burſting, which it is very apt to do. 4. The colours ſhould be bright, equally ſtriped, on a pure white ground, for if there is one petal ſingle coloured, it is called run, (in the floriſts language) and deſpiſed.

The floriſts claſs Carnations into five orders; the firſt they call flakes, theſe are of two colours only, and the ſtripes are large, going quite through the leaves; the ſecond are called bizars, theſe have flowers ſtriped or variegated with three or four different colours; the third are called piquetees, theſe flowers ſhould always have a white ground, and are ſpotted or pounced with different colours; the fourth are called painted ladies, having their petals of a red or purpliſh colour, ſtriped and are white underneath; the fifth ſort are called burſters; theſe, if managed properly, grow exceeding large, and make a grand appearance; a kind of ſecondary pod ariſes in the middle, which ſhould be carefully taken out when the flower is nearly expanded; this ſort is not ſo much cultivated as formerly, the preſent taſte being chiefly confined to (what the floriſts call) whole-blowing Carnations. Of each of theſe orders there are numerous varieties, and principally of flakes and bizars, which are moſt eſteemed. To enumerate the varieties of the chief flowers in any of theſe orders, would be almoſt impoſſible, ſince every country produces new flowers every year from ſeeds; ſo that thoſe flowers, which at their firſt blowing were greatly valued, are, when become common, little regarded, eſpecially if they are defective in any one property: therefore where flowers are ſo liable to mutability, either from the fancy of the owner, or that better kinds are yearly produced from ſeeds, (which it may be remarked does not often happen) they always take place of older, or worſe flowers, which are turned out to make room for them. Theſe flowers are dignified with the greateſt titles, ſuch as emperors, kings, princes, dukes, dutcheſſes, earls, counteſſes, barons, with gentlemen and ladies out of number, which to enumerate (if it were poſſible) would require a folio volume. Theſe flowers are propagated either from ſeeds (by which new flowers are obtained) or from layers, for the increaſe of thoſe ſorts which are worthy of preſervation. The ſeeds ſhould be collected from the beſt flowers, and ſown in the ſpring in large pots, or boxes, on light, rich earth, and covered about a quarter of an inch with the ſame. Theſe ſhould be ſituated where they can receive the morning ſun only, obſerving to water them when neceſſary. In about a month the plants will come up, which will be fit to tranſplant in July, taking, if poſſible, the advantage of moiſt weather, placing them about three inches diſtant, in beds of light, rich earth, and kept watered and ſhaded in ſunſhine weather, till they have got good rooting. Here they may continue till September, when every other one ſhould be taken up and tranſplanted into other beds, in order to give room for the remainder; here they may remain till flowering, when the goodneſs of them may be determined, obſerving, if the winter proves ſevere, to cover them occaſionally with mats, &c. When they begin to blow, all the ſingle flowers, and thoſe of one colour, ſhould be pulled up, and none but thoſe which are good ſhould be reſerved, which, to increaſe, may be layed down as ſoon as poſſible, which is in June or July, according to the condition of the ſhoots; the method of doing which may be ſeen under the article LAYERS.

Floriſts tranſplant the layers, when they have got ſtrong roots, into pots, in the ſize of which at firſt planting they differ. Some plant them in the large pots they are deſigned to blow in; others in ſmall pots, which they ſhift in the ſpring into larger. This laſt method appears the moſt eligible, for if they are in ſmall pots they ſtand in leſs compaſs, and are more eaſily protected from the ſeverity of the winter; but thoſe who plant them in large ones, ſhelter them with pots, which are open at the top and made for the purpoſe, for the cutting winds do them the greateſt injury. In theſe pots are generally placed two plants.

Another method of increaſing this plant, is by what is called piping (among floriſts;) the operation is, to cut the ſhoots quite off through a joint, and ſticking them in rich earth, under a glaſs air tight: with ſome this practice ſucceeds very well, but in general it is precarious; however, the plants raiſed this way commonly ſpindle higher than thoſe raiſed by layers.

When Carnations begin to ſpindle, they ſhould be removed and placed on a ſtage made for the purpoſe, which generally have ciſterns of water round each poſt; this is neceſſary, in order to prevent inſects, particularly ear-wigs, from getting to the flowers, which if they are ſuffered to do, will ſoon deſtroy them, there being a ſweetneſs at the bottom of the petals which theſe vermin are very fond of.

The choice in the ſituation of the ſtage is a very eſſential article for the well flowering of the plants. It muſt be defended from high winds, but not ſmothered by too much ſhelter; for unleſs the air comes freely among the plants, the flowers will never be fine. The ſtalks will ſoon riſe for flower. Two may be ſuffered from one root, but a ſingle one is better. There muſt be a ſtick planted in the pots for tying them up as they riſe, and all ſide ſhoots muſt be taken off as they appear. When the buds put forth for flowering, the inner cup muſt be opened in three or four places, to favour the regular ſpreading of the petals; and it muſt be defended from wet, and too much ſun by a glaſs cap, covered occaſionally with a piece of bays, after this a piece of paper, or card, cut round with a hole in the centre, may be placed under the petals, and the gardener muſt from day to day, as they diſcloſe themſelves, favour their ſpreading, that they may be ſupported every where by this paper collar, while they hide it compleatly; and he is afterwards to lay the ſeveral petals handſomely one upon another; they will remain as they are placed, and make a very regular appearance.

While they are in flower they muſt be carefully watched to prevent deſtruction from inſects, and watered frequently, but moderately, with water from a ſhallow pond, that lies expoſed to the ſun. By this method they will flower perfectly, and continue in their beauty as long as nature will permit; and by ſaving ſeeds from the fineſt kinds that ripen them well from time to time, the ſtock will be encreaſed and improved every ſeaſon.

Spaniſh CARNATION. See the article BARBADOES-*Flower-Fence*.

CAROB-TREE, or, *St. John's Bread*, a genus of plants of which there is but one known ſpecies.

This tree is very common in Spain, particularly in Andaluſia, and in ſome parts of Italy, as likewiſe in the Levant. In England it is preſerved as a curioſity, by ſuch as delight in exotic plants. The leaves always continue green, and being different in ſhape from moſt other plants, afford an agreeable variety when intermixed with Oranges, Myrtles, &c. in the green-houſe.

Culture of the CAROB-TREE.

It is propagated from ſeeds, which, when brought over freſh in the pods, will grow very well; in ſpring they muſt be ſown in pots, and plunged into a moderate hot-bed. In June inure them to the open air by degrees, and in July they ſhould be removed out of the hot-bed, and placed in a warm ſituation, where they may remain till the beginning of October, when they ſhould be removed into the green-houſe, placing them where they may have free air in mild weather, for being hardy they only require to be ſheltered from ſevere froſts. When the plants have remained in the pots three or four years, and have got ſtrength, ſome of them may be turned out of the pots in the ſpring, and planted into the full ground in a warm ſituation, where they will endure the cold of our winters very well, if the froſts are not remarkably hard, when that happens care muſt be taken to ſhelter them.

CARROT, *Daucus*, a genus of plants ranged by Linnæus among the *pentandria digynia*, and of which there are three ſpecies. 1. Carrot, with prickly ſeeds, or the common manured Carrot. 2. Carrot, with naked ſeeds, or the Viſnaga. 3. Carrot, with plain rays to the Involucrum, and recurved jags, or the Gingidium, or Shining Maritime Carrot.

Culture of the Carrot.

The ſecond and third ſpecies are natives of the ſouthern parts of Europe, and being of no uſe, are preſerved in botanic gardens only for the ſake of variety.

The common manured Carrot has leaves divided into a number of narrow ſegments, and the root, which is fleſhy, is too well known to require a deſcription here.

This plant is propagated by ſeed, and delights in a warm, light, ſandy ſoil, which ſhould be pretty deep, and well worked, that the roots may with greater eaſe pierce into it; for if they meet with any obſtruction, they are very apt to grow forked, and ſhoot out lateral branches, eſpecially where the ground is too much dunged the ſame year that the ſeeds are ſown; therefore the propereſt land for Carrots is ground that has been well dunged, and cropped at leaſt a year before; (this is in reſpect to kitchen gardens,) but where the ſoil is freſh and fit for Carrots dunging is not neceſſary.

Carrots are ſown at different times of the year, in order to be fit for uſe at different ſeaſons: the firſt ſeaſon is about Chriſtmas, on warm borders. The ſecond is in February or March, this is deſigned for the principal crop. For a third or autumnal crop, June or July is the time; and at the end of Auguſt ſome may be ſown, in order to ſtand the winter, by which method early Carrots may be produced in March following, before the ſpring ſowing is fit to draw. Previous to ſowing the ſeeds, they ſhould be well rubbed in the hands, to prevent their adhering together, which they are apt to do by forked hairs on their borders: and at the time of ſowing a calm day ſhould be choſen, for, being very light, if the wind blew it would be a difficult matter to ſow them even. When the ſeed is ſown, it ſhould be trod into the ground, and afterward raked ſmooth.

When the plants are come up, they ſhould be hoed out ſingly, at the diſtance of four inches. This is abſolutely neceſſary, as it not only deſtroys the weeds, but refreſhes the plants which are left, and adds greatly to their growth.

CASHEW NUT, *Acajou*, or *Anacardium*, a genus of plants of which we have but one ſpecies.

Culture of the Cashew Nut-tree.

This tree grows to a conſiderable height in its native country which is the Weſt-Indies, but in England the plants are with great difficulty preſerved; though by their firſt ſhoots from the ſeeds they appear ſo ſtrong and vigourous, as to promiſe a much greater progreſs, than they are ſeen to make here. They are raiſed eaſily from the nuts, which are annually brought from America in great plenty; each of theſe ſhould be planted in a ſmall pot filled with light ſandy earth, and plunged into a hot-bed of tanners bark, care muſt be taken to prevent their having any wet till the plants come up, for they frequently rot with moiſture. They ſhould always be ſet in the pots where they are to remain, for they ſeldom live after having been tranſplanted. If the nuts are freſh, the plants will come up in about a month after planting; and, in two months more, the plants will be four or five inches high, with large leaves; but they ſeldom advance much farther the ſame year.

The plants muſt be kept conſtantly in the ſtove, for they are too tender to live abroad in England, in the warmeſt ſeaſon of the year, nor will they thrive in a common green-houſe. As theſe plants abound with a milky acrid juice, they ſhould have but little water, even in ſummer; and if they are watered ſparingly in winter, once a month, it will be ſufficient. The pulpy fruit, to whoſe apex this nut grows is as large as an Orange, and is full of an acid juice. The nut is of the ſize and ſhape of a hare's kidney, but is much larger at the end which is next the fruit, than at the other. The ſhell contains an inflammable oil, which has been very troubleſome to thoſe who have incautiouſly put the nut into their mouths to break the ſhell.

CASSADA, or *Caſſava*, *Jatrova*, a genus of plants of which there are eight ſpecies. 1. Caſſada with hand-ſhaped leaves, whoſe lobes are ſpear-ſhaped, entire, and ſmooth. 2. Caſſada with leaves compoſed of five ſmooth lobes ending in points which are ſharply indented on their edges, and a ſhrubby ſtalk. 3. Prickly Caſſada with leaves having five lobes which are ſharply cut on their edges, and an herbaceous ſtalk. 4. Prickly Caſſada with leaves having three lobes, and an herbaceous ſtalk. 5. Caſſada with hand-ſhaped, indented, prickly leaves. 6. Caſſada with leaves divided into many parts, and briſtly ſtipulæ with many points. 7. Caſſada with angular, heart-ſhaped leaves. 8. Caſſada with leaves divided into five parts, the lobes whereof are oval and entire, and branching briſtles ariſing from the glands.

All theſe plants are natives of the warm parts of America. The firſt ſpecies is the common Caſſada, which is cultivated for food. The inhabitants firſt expreſs the juice out of the root, as having a poiſonous quality, and then grind it into flour of which they make cakes or puddings, and eſteem it an wholeſome food.

Culture of the Cassada.

The firſt ſort is propagated by cutting the ſtalks into lengths of ſeven or eight inches, which when planted put out roots.

The other ſorts are eaſily propagated by ſeeds, which ſhould be ſown on a good hot-bed in the ſpring, and when the plants are fit to remove, they ſhould be tranſplanted each into a ſmall pot, and plunged into a freſh hot-bed of tanners bark, ſhading them carefully till they have taken new root, after which admit freſh air to them daily in proportion to the warmth of the ſeaſon; they require very little water, for they are ſoon deſtroyed by wet.

All theſe ſpecies, the fourth excepted, are perennial plants, ſo do not flower till the ſecond or third year, therefore they ſhould conſtantly remain in the tan-bed of the ſtove, giving them a large ſhare of air in warm weather, but in winter they muſt be tenderly treated.

With this management the plants will continue ſeveral years, produce their flowers, and frequently perfect their ſeeds in England.

The fourth ſpecies is an annual plant and if the ſeeds are ſown early in ſpring, and the plants brought forward, they will perfect their ſeeds the ſame year.

CASSIA, a ſpecies of the Bay-tree. See the article Bay-tree.

CATALPA, a ſpecies of the Bignonia. See the article Bignonia.

Single CATCHFLY, a ſpecies of Lychnis. See the article Lychnis.

Lobel's CATCHFLY, a ſpecies of Silene. See the article Silene.

CATERPILLAR PLANT, *Scorpinus*, a genus of plants of which there are five ſpecies. 1. Caterpillar with one flower upon a footſtalk, and a pod covered with obtuſe ſcales on every ſide. 2. Caterpillar with two flowers on each footſtalk, and the outſide of the pods armed with blunt ſpines. 3. Caterpillar with footſtalks, having three flowers, and the outſide of the pods armed with ſharp diſtinct ſpines. 4. Caterpillar with flowers ſtanding upon a footſtalk, and the outſide of the pods armed with ſharp ſpines, which grow in cluſters. 5. Caterpillar with a winged leaf.

The firſt ſpecies grows naturally in Spain and Italy. This is an annual plant, with trailing herbaceous ſtalks, and at each joint have one ſpatule-ſhaped leaf, with a long foot-ſtalk. From the wings of the leaves come out the foot-ſtalks of the flowers, which ſuſtain at the top one yellow butterfly-flower; this is ſucceeded by a twiſted thick pod, in ſize and appearance reſembling a large Caterpillar, from whence it had this title.

All theſe plants are annual, and grow naturally in moſt of the warm countries in Europe; but the firſt ſort has been long cultivated in the Engliſh gardens. They are preſerved more for their ſingularity than for any great beauty.

Culture of the CATERPILLAR-PLANT.

The firſt ſpecies is the only one worth cultivating, the pods being large and more viſible than the others, have more the appearance of a Caterpillar.

It is propagated by ſeeds, which ſhould be ſown upon a bed of light earth, and when the plants come up, they muſt be kept clean from weeds, and ſhould be thinned, ſo as to leave them about a foot aſunder, for their branches trail upon the ground; and if they have not room, they are apt to overbear each other. Theſe plants ſeldom thrive well, if tranſplanted, therefore the beſt method is to put three or four good ſeeds in each place where the plants are to remain.

When the pods are ripe, they ſhould be gathered, and preſerved in a dry place, till the following ſpring, to be ſown.

CATKIN, or JULUS, is a cluſter of flowers, only of one ſex, affixed to an axis. Sometimes there are ſcales on the axis, which perform the office of cups; in others the flowers are naked.

CAULIFEROUS-PLANTS, are ſuch plants as have a true ſtalk.

CAULIFLOWER, a ſpecies of the Cabbage or Braſſica.

Theſe plants have of late years been ſo far improved in England, as to exceed in goodneſs and magnitude thoſe produced in moſt parts of Europe.

Culture of the CAULIFLOWER.

Great care ſhould be taken in the choice of the ſeeds: they ſhould always be raiſed from the beſt that can poſſibly be procured, for on this their goodneſs greatly depends.

In order to have very early Cauliflowers, the ſeeds ſhould be ſown on, or about the twenty-firſt day of Auguſt, upon an old Cucumber, or Melon-bed, which has entirely loſt its heat; diſtribute them rather thinly than otherwiſe, and cover them about a quarter of an inch thick, with ſome fine ſifted earth. If the weather proves very hot and dry, the bed ſhould be ſhaded with mats, to prevent the too quick drying of the earth, and if there be occaſion, it may be watered a little from time to time.

In about a month after ſowing, the plants will be fit to prick out; this ſhould be on other ſimilar old Cucumber, or Melon-beds, covered with freſh mould; or, if theſe cannot be had, on beds made on purpoſe, with a little new dung, and covered with mould like the former. This dung ſhould not be at all hot, for that would hurt the plants greatly at this ſeaſon, which generally is ſufficiently warm, and it ſhould be trodden down very cloſe, to prevent the worms from getting through it. The young plants ſhould be ſet in this bed about two inches ſquare aſunder, and they ſhould be ſhaded and watered there till they have rooted anew; but great care ſhould be taken not to water them too much after they begin to grow, and likewiſe not to ſuffer them to receive too much rain, if the ſeaſon ſhould be wet, leſt they ſhould become black-ſhanked, as the gardeners term it, meaning rotten in the ſtem: for whenever this happens, the plant ſo affected is inevitably loſt; they muſt be kept very clear from weeds in this bed, and about the thirtieth of October they ſhould be tranſplanted from thence into the place where they are to remain during the winter.

This ſpot ſhould be well defended from the north, eaſt, and weſt winds, by walls, pales, or reed-hedges, which laſt are to be preferred, becauſe the winds do not reverberate from them as they do from the former. The ground here, beſides being naturally rich, ſhould be well and deeply trenched, and a good quantity of thoroughly rotten dung ſhould be buried in it. If the ſoil is naturally wet, it ſhould be raiſed up in beds about two feet and an half, or three feet wide, and four inches above the level of the ſpaces between them: but if it is moderately dry, the whole ſurface may be left flat. If it is a very dry ſoil, the plants ſhould be watered a little, as ſoon as they are ſet; but by no means ſo as to make a puddle round them.

Along the middle of each of theſe beds, or of each breadth of ground that would be allotted for a bed, a row of the young plants of Cauliflowers now tranſplanted for the ſecond time, ſhould be ſet at ſuch diſtances from each other, that there may be a clear ſpace of about two feet and an half between the bell or hand-glaſſes, with which they are to be covered during the winter; at this time of planting them, two good plants ſhould always be ſet under each glaſs, about four inches apart.

If theſe Cauliflowers are intended for a full crop, the rows ſhould not be nearer together than three feet and a half: and if the ridges for Cucumbers are to be made between them, as is the general practice of the gardeners near London, they ſhould be full eight feet aſunder.

When the plants are thus ſet, the glaſſes ſhould be put over them, and kept cloſe down till they have taken root, which will be in about a week or ten days; but if a gentle ſhower of rain ſhould fall in the mean time, it will be right to uncover the plants, that they may receive the benefit of it.

In about ten days after this planting, the glaſſes ſhould be raiſed three or four inches on their ſouth ſide, and ſupported there with forked ſticks, or bricks, ſo that the air may have free acceſs to the plants; and thus the glaſſes ſhould remain over them night and day, except in froſty weather, when they ſhould be let down again as cloſe as poſſible: or if it ſhould prove very warm, as often happens in November, and ſometimes even in December; the glaſſes may be taken entirely off in the day time, and put on again at night, leſt the plants, by being kept too cloſe, ſhould be drawn into flower at that ſeaſon, as is frequently the caſe in mild winters, eſpecially if they are not ſkilfully managed.

Towards the end of February, if the weather is mild, another good ſpot of properly fenced ground ſhould be well trenched and dunged as before, and the leaſt flouriſhing of the two plants under each glaſs, for the ſtrongeſt is not to be removed any more, ſhould be carefully taken up with a trowel, ſo as to preſerve as much earth as poſſible about its roots, and at the ſame time not to damage the other.

The plants thus taken up are to be ſet in this newly prepared ground, at the ſame diſtance as before; the ſpace from plant to plant, in the rows, ſhould be twenty-eight, or thirty inches.

The plants left under the glaſſes ſhould be earthed up, by drawing the mould towards their ſtems with a ſmall hoe, as ſoon as the others have been removed from beſide them: but in the doing of this great care muſt be taken not to let any of the earth fall into their hearts, leſt it ſhould rot them, or at leaſt conſiderably injure their future growth.

After this earthing the glaſſes ſhould be ſet over them again, but an inch or two higher than before, to give them more air, and with the precaution of taking them quite off, whenever gentle ſhowers deſcend, for theſe will always greatly refreſh the plants. When they begin to grow faſt, and to fill their glaſſes with their leaves, which will not be long after this little ſtirring of the ground, the earth around them ſhould be dug as deep, and as near to the plants as poſſible, without hurting them, for this will ſpeedily bring them very forward. In this digging, a kind of border may be raiſed around them, broad enough for the glaſſes to ſtand on, and about four inches high, which, with the farther help of a continuation of props to ſupport them, ſo as to let in the air, will give the plants ſuch increaſe of room that the glaſſes may be continued over them till April: an advantage which they could not otherwiſe enjoy, without prejudice to their leaves, and of ſo much the greater conſequence, as there are frequently in this country ſuch ſevere returns of froſt about the latter end of March, as would greatly hurt theſe plants, eſpecially after having been tenderly nurſed under glaſſes.

When the plants removed into the new ſpot of ground have been ſet, glaſſes ſhould be placed over them very cloſe, till they have taken freſh root; the props of theſe glaſſes ſhould then be raiſed pretty high, eſpecially if the ſeaſon proves mild, in order that there may be free acceſs of air to the plants, to ſtrengthen them; and in warm weather, as well as in gentle ſhowers of rain, the glaſſes of theſe, and of the other plants, which were left ſtanding, may be taken off entirely; for it will now be time to begin to harden them all by degrees, in order to enable them to bear the open air: but even while this is practiſed in the day, the glaſſes ſhould be continued over them as long as poſſible at night, if there is the leaſt danger of froſt. A farther neceſſary caution relative to the day, is never to let the glaſſes remain upon theſe plants, when the ſun ſhines very hot, eſpecially if their leaves ſpread ſo as to preſs againſt the ſides of the glaſs: for the moiſture which ariſes from the ground, together with that which proceeds from the perſpiration of the plants, has, by being detained upon their leaves, frequently been ſo heated by the next day's ſun, powerfully heightened by means of the glaſs, as abſolutely to ſcald all the larger leaves, to the great detriment of the plants, and ſometimes to the deſtruction of them in ſuch a manner, that they have not been worth cultivating afterwards.

If the plants have thriven well, ſome of them will begin to fruit by the end of April. It will therefore be neceſſary to look them over carefully, at leaſt once a day, and where the flowers appear plainly, to break down ſome of the inner leaves, ſo as to cover it, and ſhade it from the ſun, which would otherwiſe ſoon render it yellow and unſightly.

When the flower is full grown, which is known by the parting of its ſurface, as if it would run to ſeed, the whole plant ſhould be drawn out of the ground; and if the flower is wanted for preſent uſe, it may then be cut out of the leaves; but if it be deſigned for keeping, it ſhould be laid in a cool place, with its leaves about it; this is a much better method than that of cutting the heads off as they ſtand, and leaving their then uſeleſs ſtems in the ground, which ſerve only to taint the air around them. The moſt proper time for drawing them, is early in the morning, before the ſun has exhaled any part of their moiſture: for thoſe that are gathered in the heat of the day, loſe their natural criſpneſs, and become tough.

The ſecond crop of Cauliflowers, which the gardeners near London call the great crop, is that which generally ſupplies the markets here in May, June, and July. The ſeeds for this is ſomewhat of a more backward kind than thoſe of the former, and they are alſo moſt commonly ſown four or five days later; the manner of ſowing them, and of managing the plants produced from them, is in all reſpects exactly the ſame as before directed for the early crop, until the end of October; from that time the practice of the London gardeners, who carry on a great trade in this article, is as follows.

Upon a couch of dung, beaten down cloſe with a fork, in order to render it the more difficult for worms to pierce through, they place a layer of good freſh earth, about four or five inches thick.

The thickneſs of the dung is from ſix inches to a foot, according to the ſize of the plants, the ſmalleſt requiring moſt to bring them forward. The plants are ſet in this bed at the diſtance of about two inches and a half ſquare from each other, and they are ſhaded and watered till they have taken new root. The number of theſe beds is proportioned to the quantity of the plants, and they are covered either with glaſs-frames, or with hoops, over which mats, &c. are ſpread, but great care is taken not to keep theſe coverings cloſe, becauſe of the warmth of the dung: for that which is uſed here, not having loſt the power of fermenting, will occaſion a conſiderable damp, which would greatly injure the plants if it was pent in. When they have taken root, as much free, open air, as poſſible is given them, by taking the coverings off in the day-time, whenever the weather permits, and raiſing them up with props at night, unleſs the air is froſty: in this laſt caſe they are ſhut down cloſe; and in very hard froſts, the glaſs-frames are covered with mats, ſtraw, peaſe-haulm, &c. Great caution is likewiſe uſed to guard the plants againſt heavy rains in the winter; and if any of their under-leaves grow yellow, or decay, at that ſeaſon of the year, particular care is taken to pick them off in as mild a day as can be choſen, becauſe, ſhould the weather prove ſo very bad as to occaſion a neceſſity of keeping the covers cloſe down for two or three days together, thoſe decayed leaves would render the incloſed air ſo hurtful to the plants, then in a ſtate of great perſpiration from their cloſe confinement, that numbers of them would ſoon be deſtroyed.

Early in February, if the weather is tolerably mild, they begin to harden the plants by degrees, in order to prepare them for tranſplantation. The ground into which they are to be tranſplanted, beſides being quite open from trees, rather moiſt than dry, and well dunged and dug, as before directed, is, when managed in the moſt proper manner, ſown with Radiſhes a week or a fortnight before the Cauliflowers are planted in it; this is a moſt excellent method; for if there are not ſome Radiſhes among them, and the month of May ſhould prove hot and dry, as it ſometimes is, the fly will ſeize the Cauliflowers, and eat numbers of holes in their leaves, to the great prejudice, if not to the entire deſtruction of the plants; whereas, if there are Radiſhes upon the ſpot, the flies will take to them, and never meddle with the Cauliflowers, while the others laſt.

Towards the middle of February, if the ſeaſon is good, they begin to plant theſe Cauliflowers out in rows.

Some raiſe a third crop of Cauliflowers, by making a ſlender hot-bed in February, ſowing the ſeeds thereon, ſifting light mould over them to the thickneſs of about half an inch, and then covering the whole with glaſs-frames. When the plants have four or five leaves, they remove them into another hot-bed, where they plant them about two inches aſunder every way; and in the beginning of April, they harden them by degrees, to fit them for being tranſplanted again; this is moſt commonly done in the middle of that month, at the diſtances before-mentioned, for the ſecond crop, like which, this is from thenceforth managed in every reſpect. If the ſoil in which theſe Cauliflowers are planted, is light, and the ſeaſon likewiſe reaſonably moiſt and cool, they will produce heads fit to be cut about a month after the ſecond crop is gone.

The table may be continually ſupplied with Cauliflowers after Michaelmas, through the months of October, November, and often a great part of December, if the ſeaſon be favourable, and the ſoil good, by ſowing them about the twenty-third of May, and tranſplanting them in the manner before-mentioned.

The gardeners about London have almoſt wholly laid aſide the troubleſome, expenſive, and little uſeful practiſe of watering their Cauliflower plants in the ſummer; for experience has taught them, that if they are once watered, and it is not continued conſtantly, they had better never have had any; and that if care is taken to keep the earth cloſe about their ſtems, and clear every thing away that grows near them, ſo that they may have free, open air, they ſucceed better without than with water.

CAULIS, a term uſed by botaniſts, to expreſs the ſtalk, ſtem, or trunk of any plant.

CEDAR of *Libanus*, a ſpecies of the Pinus or Pine tree, according to Linnæus, but of the Larix, or Larch tree, according to other authors.

Theſe are trees of great antiquity, but, till within theſe few years, little cultivated in England. They are not lofty, but their branches extend very far on every ſide their trunks.

The cones of this tree are frequently brought from the Levant, which, if kept entire, will preſerve their ſeeds good for ſeveral years.

The beſt method of getting the ſeeds out, is to ſplit the cones, by driving a piece of ſharp iron through the centre lengthways, which will ſplit the cone. But it will be proper, before you open the cones, to put them into warm water for twenty-four hours, which will render them much eaſier to ſplit, and the ſeeds may be taken out with greater ſafety; for great care is required in the doing of it, for the ſeeds being very tender, will bruiſe if there is any force employed to get them out.

Culture of the CEDAR *of Libanus.*

When the ſeeds are taken out of the pods, let them be ſown in boxes, or pots of light freſh earth, cover them with the ſame earth about half an inch deep, then place them in an eaſt aſpect, where they may have the ſun till eleven in the morning, but great care muſt be taken to ſhade them in the middle of the day: for when they are too much expoſed to the ſun, the ſurface of the ground will dry ſo faſt that it will prevent the ſeeds from vegetating. When the plants come up they muſt be guarded from the birds, otherwiſe they will peck off their tops; they muſt alſo be kept clean from weeds, and not placed under the drip of trees. The plants may remain in theſe boxes or pots in which they were ſown till the following ſpring, but it will be proper to place them under a frame in winter, for while they are young they are in danger of loſing their tops, if they are pinched by froſt. In the ſpring, before the plants begin to ſhoot, they ſhould be carefully taken up and tranſplanted into beds at about four inches diſtance, cloſing the earth gently to their roots; theſe beds ſhould be arched over with hoops, and covered with mats in the heat of the day, to ſhade the plants from the ſun till they have taken freſh root; and, if the nights prove froſty, it will be proper to continue the mats over them, but in cloudy or moiſt weather they muſt be taken off. After the plants are well rooted, they will require no other care than to keep them clean from weeds, unleſs the ſeaſon ſhould prove very dry, in which caſe it will be proper to give them a gentle watering once a week; but as too much wet is very often injurious to them, it will be better to ſcreen them from the ſun in hot weather to prevent the earth from drying too faſt, or cover the ſurface of the ground with mulch to keep it cool, than to water the plants often.

In theſe beds the plants may ſtand two years, then they ſhould be either tranſplanted to the places where they are deſigned to remain, or to a nurſery, where they may grow two years more; but the younger theſe plants are when they are planted out for good, the better the trees will thrive, and the longer they will continue.

When theſe plants begin to ſhoot ſtrong, the leading ſhoot is very ſubject to incline to one ſide, therefore in order to have them upright, their ſhoots muſt be ſupported with ſtakes, to keep the leaders ſtrait, until they are grown to the height they are deſigned, otherwiſe their branches will extend on every ſide, and prevent their upright growth.

Baſtard CEDAR, *Theobromia*, a genus of trees of which there is but one known ſpecies.

This tree grows naturally in moſt of the iſlands in the Weſt Indies, where it riſes to the height of forty or fifty feet, having a trunk as large as the body of a middle-ſized man, covered with a dark brown furrowed bark, and ſending out many branches towards the top.

Culture of the Baſtard CEDAR.

It is propagated by ſeeds, which muſt be procured as freſh as poſſible, from the iſlands where the plants grow naturally. Theſe ſhould be ſown in the ſpring, upon a good hot-bed, and when the plants are fit to remove, they ſhould be planted each in a ſeparate ſmall pot, and plunged into a hot-bed of tanner's bark, obſerving to ſhade them from the ſun till they have taken new root, after which, when the weather is warm you muſt admit the freſh air. In ſummer they muſt frequently be refreſhed with a little water, keeping them always in the tan-bed of the ſtove.

CEDAR of Carolina, Bermudas, and Lycia, all different ſpecies of the Juniper. See the article JUNIPER.

CELERY, a ſpecies of the Parſley or Apium, of which there are two ſorts diſtinguiſhed by the names of the Italian Celery, and the Celeriac.

Culture of the CELERY.

The ſeeds of theſe plants ſhould be ſown at two or three different times, the better to continue them for uſe during the whole ſeaſon, without their coming up to ſeed. The firſt ſowing ſhould be in the beginning of March, upon a gentle hot-bed; the ſecond may be at the end of the ſame month, in an open ſpot of light earth, where it may enjoy the benefit of the ſun; the third time of ſowing ſhould be the latter end of April, or beginning of May on a moiſt ſoil; and if expoſed to the morning ſun only, it will be of great advantage to the plants, and it never ſhould be under the drip of trees.

In about a month after ſowing, the plants will come up; they muſt be kept clear from weeds, and if the ſeaſon is dry they muſt be watered. When they have been a month or five weeks above ground they will be fit to tranſplant. Set them at three inches diſtance, in beds of moiſt, rich earth. The middle of May ſome of the plants of the firſt ſowing will be fit to tranſplant for blanching; the ſoil in which they are now to be planted muſt be moiſt, rich, and light. The manner of planting them at this time is as follows: dig a trench of ten inches wide, and eight or nine inches deep, looſening the earth at the bottom, and laying it level; the earth which is dug out of the trench muſt be equally laid on each ſide of the trench, to be ready to draw in again to earth the Celery as it advances in height. The trenches ſhould be made three feet aſunder, and the plants ſet in them at ſix inches diſtance. Before you plant them you muſt trim their roots and cut off the tops of the long leaves, and as they are planted you muſt obſerve to cloſe the earth well to their roots with your feet, and to water them plentifully until they have taken new root: after this they require little care but the drawing up the earth to them as they advance in height: great care muſt however be obſerved in doing this, never to bury the heart of the plant, nor ever to perform it but in dry weather; for if done in wet the plants will rot.

When the plants are advanced a conſiderable height above the trenches, and all the earth which was laid on the ſides has been employed in earthing them up, you muſt then with a ſpade dig up the earth between the trenches, which muſt be uſed for the ſame purpoſe, continuing from time to time earthing it up, till they are fit for uſe.

About the latter end of June ſome of the firſt planting will be fit to cut, and the ſucceeding ones if properly managed, will continue till April or May, but you ſhould obſerve to plant the laſt crop in a dry ſoil, to prevent its being rotted with too much wet in winter. When the froſt is very hard cover the ridges of Celery with ſome peaſe-haulm, or ſome ſuch light covering which will admit the air to the plants, and at the ſame time keep them warm, for if they are covered too cloſe, they will be very ſubject to rot, but this covering muſt be taken off whenever the weather will permit, otherwiſe it will cauſe the Celery to pipe and run to ſeed. By this method the froſt will be kept out of the ground, and the Celery may always be drawn for uſe when wanted, but if neglected, cannot be taken up in hard froſt. Many plantations may be made of one ſowing, if care is taken to pull up the ſtrongeſt plants firſt, then ſome time after the ſtrongeſt of the remaining, and finally the leaſt of all, which will be got to a proper growth by that time.

The other ſort of Celery which is commonly called Celeriac, is to be managed in the ſame manner as is directed for the Italian Celery, excepting that it ſhould be planted upon the level ground, or in very ſhallow drills, for as this plant ſeldom grows above eight or ten inches high, it requires but little earthing up. The great excellency of this conſiſts in the ſize of the root, which is often as large as an ordinary turnep. It ſhould be ſown the latter end of March upon a border of rich earth, and conſtantly watered in dry weather, otherwiſe the ſeeds will not grow: when the plants are large enough to tranſplant, they ſhould be placed eighteen inches aſunder, row from row, and the plants ſix or eight inches diſtant in the rows: the ground muſt be carefully kept clean from weeds; but this ſort will require only one earthing up, which ſhould not be performed till the roots are nearly grown to their ſize.

The beſt method of ſaving the ſeed of the Celery is to make choice of ſome long good roots, which have not been too much blanched; early in ſpring plant them out in a moiſt ſoil, at about a foot and a half aſunder; and when they run up to ſeed, keep them ſupported with ſtakes to prevent their being broke down by the wind. In July when the ſeed begins to form, if the ſeaſon ſhould prove very dry it will be proper to water the plants, which will greatly help their producing good ſeeds. In Auguſt theſe ſeeds will be ripe. Chuſe a dry day for cutting up the plants, ſpread them upon cloths in the ſun to dry, then beat out the ſeed, and preſerve it in bags for uſe.

CELLS *of Plants*, the hollow places between the partitions in the pods, huſks, and other ſeed-veſſels of plants. According as there is one, two, three, &c. of theſe cells, the veſſel is ſaid to be unilocular, bilocular, trilocular, &c.

CENTAURY, a genus of plants ranged by Linnæus among the *ſyngeneſia polygamia*, and of which there are too many ſpecies to be enumerated in this work.

Evergreen CENTAURY. This is an elegant plant, the ſtalk is about five feet high, firm and full of branches; the leaves have no footſtalk, they are long, narrow, lanceolated, and of a pale green. The flowers ſtand in ſcaly heads at the tops of all the branches, they riſe on ſhort leafy footſtalks from the boſoms of the upper leaves, are large and of a duſky red.

Culture of this CENTAURY.

The method of raiſing this plant is from ſeeds, theſe ripen very well with us: in the beginning of April ſow theſe on an open ſpot of ground: when the young plants come up they muſt be weeded, and at times watered; when they are three inches high, they muſt be tranſplanted into another bed in the nurſery, allowing them a foot ſpace aſunder.

In the latter end of September they muſt be removed into the garden, and placed where they are to remain. They muſt be taken up with a large ball of earth about the roots, and a hole opened for their reception. They ſhould be allowed the diſtance of a yard from each other, and the ground about them kept clean from weeds, when too dry they ſhould be conſtantly refreſhed with a little water. Thus they will flower all the ſucceeding ſummer, till late in autumn, with great profuſion. To promote this, the flowers ſhould be nipped off as ſoon as their beauty is paſt; except a few which muſt be left for ſeed.

They ſhould be raiſed anew from the ſeeds every two or three years, for the plants flower much more elegantly the ſecond or third ſeaſon than afterwards.

CHAMOMILE, *Anthemis*, a genus of plants claſſed by Linnæus among the *ſyngeneſia polygamia ſuperflua*, and of which there are a number of ſpecies, moſtly propagated in botanic gardens for medicinal uſes.

Culture of the CHAMOMILE.

Theſe plants are all propagated either by ſeeds or ſlips; if by ſeeds they ſhould be ſown in the ſpring, upon poor land, where the plants will continue much longer than in good ground. The ſlips may be planted during any of the ſummer months, obſerving to ſet them in a ſhady border, and water them until they have taken root. In the autumn they may be removed to the places where they are to remain, and will require no other care than to be kept clean from weeds. Theſe plants do not grow tall, but are buſhy, ſo ſhould be allowed room.

CHARVIL, *Chærophyllum*, a genus of plants ranged by Linnæus among the *pentandria digynia*, and of which there are ſix ſpecies, but one only is cultivated in our gardens.

Culture of the Garden CHARVIL.

It is propagated by ſeeds which ſhould be ſown in autumn, ſoon after they are ripe, for thoſe which are ſown in ſpring ſeldom come up, and if they do the plants are always bad, for when the warm weather ſets in, they wither and decay, but the plants which riſe in autumn, continue green all the winter, and in April, they flower, ſoon after which the ſeeds ripen and the whole plants decay. It requires no particular care in the culture as the plants will thrive in any ſoil, or ſituation.

CHASTE-TREE, *Vitex*, a genus of plants claſſed by Linnæus among the *didynamia angioſpermia*, and of which there are four ſpecies. 1. Chaſte-tree with fingered leaves, and whorled ſpikes of flowers, or common Chaſte-tree. 2. Chaſte-tree with fingered, ſawed leaves, and ſpikes in panicles. 3. Chaſte-tree with trifoliate and quinate leaves, and panicles of flowers riſing from the diviſion of the branches. 4. Chaſte-tree with ternate and quinate leaves, which are cut like wings, and whorled ſpikes of flowers terminating the branches.

The firſt ſort grows naturally in Sicily, near Naples, and in moiſt places in the Archipelago. It has a ſhrubby ſtalk which riſes to the height of ten or twelve feet, ſending out branches oppoſite the whole length, they are garniſhed with leaves of a dark green on their upper ſide but hoary on their under. The flowers are produced in ſpikes at the extremity of the branches, their colour is ſometimes white, and ſometimes blue, theſe are generally late before they appear; they have an agreeable odour, and make an elegant appearance in autumn, when moſt other ſhrubs have done flowering.

The ſecond ſpecies is a native of Italy, and the ſouth of France, it is a lower ſhrub than the former, ſeldom riſing more than five feet high. The flowers come out in panicled ſpikes toward the end of the branches; they are blue, and appear ſooner than thoſe of the firſt ſort, but they are not ſo large.

The third ſort is a native of both Indies; it riſes to the height of nine, and ſometimes ten feet. The flowers are ſmall, and white, and diſpoſed in panicles, which riſe at the diviſion of the branches.

The fourth ſpecies grows naturally in the northern parts of China, where it riſes to the height of eight or ten feet. The leaves are of a dark green on their upper ſide, but grey on the under. The flowers are diſpoſed in whorled ſpikes, which come out oppoſite to the wings of the ſtalk; theſe are blue, and about the ſize of thoſe of the firſt.

Culture of the CHASTE-TREE.

The firſt and ſecond ſpecies are very hardy, they may be propagated by planting their cuttings early in the ſpring before they ſhoot; they require a freſh, light ſoil, and muſt be frequently refreſhed with water until they have taken root; after which they muſt be carefully cleared from weeds during the ſummer ſeaſon, and if the following winter proves ſevere it will be proper to lay a little mulch on the ſurface of the ground between the plants to prevent the froſt from penetrating to their roots, which, while young, would injure them, and as theſe cuttings are apt to ſhoot late in the year, their tops will be very tender, and the early froſts in autumn often kill them down a conſiderable length, for which reaſon they muſt be covered with mats which will be of great ſervice to them. Toward the middle of March, if the ſeaſon is favourable, they ſhould be tranſplanted either into the places where they are deſigned to remain, or into a nurſery where they may grow two or three years to get ſtrength; here they muſt be pruned up, in order to form them into regular ſtalks, otherwiſe they are very ſubject to ſhoot out their branches in a ſtraggling manner.

The third ſort is propagated both by cuttings and layers. The cuttings muſt be planted in pots, and plunged into a moderate hot-bed, cover them cloſe with a bell or hand-glaſs, to exclude the air; they muſt be refreſhed with water at times, but it muſt be given them in ſmall quantities. The beſt time to plant the cuttings, is about the middle or latter end of April; for if they ſucceed, they will put out roots in ſix or ſeven weeks, and will then begin to ſhoot: therefore they ſhould have the free air admitted to them gradually, to prevent their ſhooting weak: then they may be carefully taken up, and each planted in a ſeparate ſmall pot, filled with light earth, and plunged into the hot-bed again, ſhading them from the ſun till they have taken new root, after which, when the weather is good, let them have plenty of free air, and treat them in the ſame manner as other tender plants. In winter they muſt be kept in a moderate temperature of heat, and in ſummer have all the air that can poſſibly be admitted to them, but not removed into it openly.

The fourth ſort is propagated by cuttings, which, in ſpring, muſt be planted in pots, and plunged into a moderate hot-bed; and when the cuttings are well rooted, they ſhould be carefully taken up, and each planted into a ſeparate ſmall pot, filled with light earth, and placed in the ſhade till they have taken freſh root: then they may be removed to a ſheltered ſituation, and placed with other green-houſe plants, where they may remain all the ſummer; but in autumn they muſt be placed under ſhelter, for they will not bear the cold of our climate. The plants are late in putting out new leaves in the ſpring, and, before theſe appear, they have ſo much the appearance of dead plants, that they have been turned out of the pots by ſome, ſuppoſing they were really ſo.

CHELONE, a genus of plants, for which there is no Engliſh name; it is ranged by Linnæus among the *didynamia angioſpermia*; and there are three ſpecies of it. 1. Chelone, with ſpear-ſhaped, ſawed leaves, and the upper ones placed oppoſite. 2. Chelone, with the ſtalk and leaves hairy. 3. Chelone, with the leaves embracing the ſtalk, and a dichotomous panicle.

Culture of the CHELONE.

They are all natives of North-America, have perennial roots, and flower in Auguſt. If the ſeaſon proves favourable, they will ripen their ſeeds here; but as the plants propagate very faſt by their creeping roots, the ſeeds are ſeldom regarded. If they are tranſplanted in ſpring, it ſhould not be later than the middle of March: but the beſt time for doing this is in autumn; they will thrive in almoſt any ſoil or ſituation.

Their roots are apt to creep too far if not confined, therefore the beſt method is to plant them in pots. They ſhould have plenty of water in hot weather.

CHERRY-TREE, *Ceraſus*, according to Linnæus a ſpecies of the Prunus, but a diſtinct genus according to other authors, and of which there are five ſpecies.

1. The common, or Kentiſh Cherry. 2. Cherry-Tree, with ſpear-ſhaped ſawed leaves, or Black Cherry. 3. Cherry-Tree, with oval ſpear-ſhaped leaves, and flowers growing in cluſters, commonly called the Cluſter Cherry. 4. Cherry-Tree, with flowers growing in round bunches, and oval leaves, called the Mahaleb, or Perfumed Cherry. 5. Cherry-Tree, with ſmooth ſpear-ſhaped entire leaves, of a bluiſh green on their underſide, and ſpreading branches.

The firſt ſort is the common, or Kentiſh Cherry, and which is too well known to ſtand in need of any deſcription here; from this, it is ſuppoſed the following ſorts have been raiſed.

The Early May Cherry, the May Duke Cherry, the Archduke Cherry, the Flemiſh Cherry, the Red-Heart, the White-Heart, the Black-Heart, the Amber-Heart, the Ox-Heart, the Lukeward, the Carnation, the Hertfordſhire-Heart, the Morello, the Bleeding-Heart, and the Yellow Spaniſh Cherry.

The Black Cherry is ſuppoſed to be a native of England: this grows to be a large tree, fit for timber; there are only two varieties of it, the Black Coroun, and the ſmall Wild Cherry; the ſtones of this ſort are generally ſown for raiſing ſtocks to graft or bud the other ſorts of Cherries upon.

Culture of the CHERRY-TREE.

All the ſorts of Cherries which are uſually cultivated in gardens, are propagated by inoculation or grafting the ſeveral kinds into ſtocks of the Black or Wild red Cherries, which are ſtrong ſhooters, and of longer duration than any of the garden kinds; the ſtones of theſe two ſorts are ſown in autumn on a bed of light ſandy earth, and the young ſtocks produced from them are to remain where they riſe, till the ſecond autumn after their ſowing; then, in October, they ſhould be planted out into a rich ſoil, allowing three feet diſtance from row to row, and about one foot in the rows. The ſecond year after the planting out, they will be fit to bud, if they are intended for dwarfs; but if they are intended for ſtandards, they will not be tall enough till the fourth year; for they ſhould be budded, or grafted, near ſix feet from the ground. The grafting is uſually performed in the ſummer, and the head of the ſtock is to be cut off in the beginning of the March following, about ſix inches above the bud; if the bud has ſhot well, and there is any fear of its being diſplaced by winds, it muſt be gently tied up to the part of the ſtock left above it. The autumn afterwards, theſe trees will be fit to remove, and be left where they are to remain; or they may be left till the next year. Lopping off part of the heads of theſe trees, when they are planted in their places, is a very bad method, it often kills them, and if they eſcape they ſeldom recover it for four or five years.

If the trees are intended for walls, it is adviſable to plant dwarfs between the ſtandards, that theſe may cover the lower part of the wall, while the others ſpread over the upper part; and when the dwarfs riſe to fill the walls, the ſtandards ſhould be taken entirely away. When theſe trees are taken up from the nurſery, the dead fibres of the roots muſt be carefully taken off, and the upper part of the ſtock, which is above the bud, muſt be cut off cloſe down to the back part of it; obſerve to place the bud directly from the wall.

Cherry-trees thrive beſt on a dry, hazely loam. In a gravelly ſoil they are very ſubject to blights, and ſeldom ſtand long good.

Your trees, if planted againſt a wall, ſhould be placed at leaſt twenty, or twenty-four feet aſunder, with a ſtandard-tree between each dwarf.

In pruning theſe trees, their ſhoots ſhould never be ſhortened, for they moſtly produce their fruit from their extreme part. All the fore-right ſhoots are to be diſplaced, and the others trained horizontally; and where there is a vacancy in the wall, the branches being ſhortened, will throw up a ſhoot or two to fill it.

CHERRY-LAUREL, according to Linnæus a ſpecies of the Ceraſus, but other authors have conſidered it as a ſpecies of the Padus.

Culture of the CHERRY-LAUREL.

There are ſeveral ſorts of this ſpecies cultivated in the gardens about London; they are all propagated by ſowing the berries, or by laying down the tender branches, which in a year's time will take root; they may then be tranſplanted into beds for a year or two, or placed at once where they are to remain. If they are to be raiſed by ſowing, the berries muſt be gathered when ripe, which is in January, and kept in dry ſand till the beginning of March; then ſow them in a bed of rich, dry earth, well ſheltered from the north and eaſt winds. The bed muſt be levelled, and furrows made along it of an inch deep, at eight inches diſtance; drop the berries into theſe, about two inches aſunder, and cover them with earth; if the ſeaſon proves very dry, they muſt be watered: in about two months they will come up; let them remain in this bed for two years: then, in April, tranſplant them into a bed of earth well dug, allow them eighteen inches diſtance from each other, water them well, and cover their roots with mulch. Tye them to ſtakes, in order to train them up ſtrait, and prune off their under ſhoots, which will make them advance in height greatly.

Barbadoes CHERRY, *Malpighia*, a genus of plants, of which there are eight ſpecies. 1. Barbadoes Cherry, with ſmooth, oval, entire leaves, and umbellated foot-ſtalks. 2. Barbadoes Cherry, with the appearance of the Pomegranate-tree. 3. Barbadoes Cherry, with ſpear-ſhaped leaves, hoary on their under ſide, and umbellated foot-ſtalks proceeding from the wings of the ſtalk. 4. Barbadoes Cherry, with ſpines growing on the under ſide of the leaf. 5. Barbadoes Cherry, with oval, ſmooth, acute-pointed leaves, and umbellated foot-ſtalks proceeding from the ſides and ends of the branches. 6. Barbadoes Cherry, with linear ſpear-ſhaped leaves, rigid declining briſtles, and foot-ſtalks, having flowers proceeding from the ſides of the branches in cluſters. 7. Barbadoes Cherry, with ſpear-ſhaped leaves, indented and prickly, whoſe under ſides are ſet with ſpiny hairs. 8. Barbadoes Cherry, with leaves nearly oval, indented and prickly, and foot-ſtalks with one flower.

All theſe plants are natives of the warmeſt parts of America; the firſt ſort is cultivated in the Weſt-Indies for the ſake of its fruit, which is very indifferent, but it has a pleaſant acid flavour, that renders it agreeable to the inhabitants of thoſe warm countries.

Culture of the Barbadoes CHERRY.

All the ſpecies are propagated by ſeeds, which muſt be ſown upon a good hot-bed.

When they are fit to tranſplant, put them each into a ſeparate ſmall pot, and plunge them into the bark-bed of the ſtove, where it will be proper to keep them the two firſt winters, and afterwards in winter they may be placed upon ſtands in the dry-ſtove, where they may be kept in a temperate warmth; they will thrive here much better than in a greater heat. When they are placed in the dry ſtove, they muſt be watered two or three times a week, but it muſt be given them in ſmall quantities.

Cornelian CHERRY, a ſpecies of the Cornus, and the only one cultivated in gardens; ranged by Linnæus among the *tetandria monogynia*. It was formerly very common in our gardens, where it was propagated for its fruit, which, when preſerved, made good tarts, but at preſent it is only cultivated as a flowering ſhrub. There is no great beauty in the flowers, but as they are generally produced in plenty by the beginning of February, a ſeaſon when few other flowers appear, they are worthy a place in gardens for the ſake of variety.

Culture of the Cornelian CHERRY.

This plant is propagated by ſeeds, which ſhould be ſown in autumn, ſoon after they are ripe; in the ſpring following the plants will appear, when they ſhould be watered and weeded. In the autumn following they muſt be removed, and planted in beds in the nurſery, where they may remain two years, by which time they will be fit to remove to the places where they are deſigned to ſtand. Theſe plants are alſo propagated by ſuckers and laying down of the branches; they require no particular management different from the ſeedling plants.

Winter CHERRY, *Phyſilis*, a genus of plants ranged by Linnæus among the *pentandria monogynia*, and of which there are nine ſpecies. 1. Winter Cherry with a ſhrubby ſtalk, erect branches, and flowers growing in cluſters. 2. Winter Cherry with a ſhrubby ſtalk, flexible branches, and flowers growing in cluſters. 3. Winter Cherry with a ſhrubby ſtalk, and oval woolly leaves. 4. Winter Cherry with heart-ſhaped, entire, obtuſe, rough leaves, and ſmooth petals. 5. Winter Cherry with two leaves at a joint. 6. Winter Cherry with angular ſmooth branches. 7. Winter Cherry with hairy, viſcous leaves, and nodding foot-ſtalks. 8. Winter Cherry with fruit bearing footſtalks, longer than the leaf. 9. Winter Cherry with farinaceous, germinating divarications.

Culture of the Winter CHERRY.

The five firſt ſpecies are perennial plants. The firſt grows naturally in Mexico, Crete, and Spain, and is propagated by ſeeds, which, in the beginning of April, ſhould be ſown on a bed of light earth. When the plants are two or three inches high, they ſhould be carefully taken up, and each planted in a ſeparate ſmall pot, filled with earth out of a kitchen garden, and placed in the ſhade till they have taken new root, they ſhould then be removed to a ſheltered ſituation, where they may remain till the beginning of October, when they muſt be removed into the green-houſe, and treated like other green-houſe plants.

The ſecond ſpecies is alſo propagated by ſeeds, which ſhould be ſown upon a moderate hot-bed. When the plants have four leaves, they ſhould be tranſplanted on a freſh hot-bed, and ſhaded from the ſun till they have taken new root, they ſhould then have freſh air admitted to them in mild weather and be treated like other exotic plants. When theſe are grown three or four inches, they ſhould be tranſplanted each into a ſeparate ſmall pot, filled with light, loamy earth, and placed in a frame upon an old hot-bed, ſhading them from the ſun till they have taken new root. Then inure them gradually to bear the open air, into which they may be removed in July and placed in a warm ſituation; here they may remain till the end of September, when they ſhould be taken into ſhelter, and the firſt winter placed in a moderate ſtove; but when the plants have got ſtrength, they will live through the winter in a good green-houſe.

The third ſpecies is a native of Curaſſao, and may be propagated by cuttings, which muſt be planted in ſmall pots, filled with light, loamy earth, and plunged into a moderate hot-bed; care muſt be taken to ſhade them from the ſun till they have taken root; after which they ſhould be hardened by degrees, and, about the beginning of July, removed into the open air, in a ſheltered ſituation.

When they have obtained ſtrength, let them be planted each in a diſtinct pot, and afterwards treated as was directed for the laſt ſpecies; this ſort ſeldom ripens ſeeds in England.

The fourth ſpecies is a native of Buenos Ayres, and is eaſily propagated by parting of the roots, either in ſpring or autumn, planting them in pots in winter; they muſt be ſheltered under a hot-bed frame, from whence the plants may enjoy the free air in mild weather.

The fifth ſort is a native of India, and is propagated either by ſeeds or by parting of the roots: it requires a ſhady ſituation.

The ſixth, ſeventh, eighth, aud ninth ſpecies are annual plants, and natives of both Indies: they are propagated by ſeeds, which ſhould be ſown on a moderate hot-bed: when the plants are a little advanced, they ſhould be planted on a freſh hot-bed, to bring them forward; when they are grown ſtrong, let them be inured to the open air, and afterwards tranſplanted, with balls of earth to their roots, into a warm border, and water them gently till they have taken root; after which they will require no other care than being kept clear from weeds.

Double-bloſſomed CHERRY, a ſpecies of the Ceraſus.

This is a moſt elegant variety of the common kind of Cherry. The tree will riſe to a conſiderable height, but it is better kept to an under-growth, with a full head, that its flowers may ſtand cloſe, and give their beauty diſtinctly to the eye. They are double in a various degree: in ſome there are only three rows of petals; in others the ſeries are much more numerous, and the flower ſo full that it becomes globular. This is the moſt elegant ſtate. The colour is a perfect white; and when the full head of a ſmall ſtandard is profuſely covered with them, it appears at ſome diſtance a ball of ſnow; and the nearer it is viewed the more it charms.

Each flower ſtands on its own footſtalk, which is tender and of a pale green, ſtained with red. Many of theſe riſe together, and the whole cluſter is very beautiful.

No fruit follows, by chance a Cherry may be left on a bough, but this ſeldom happens.

Culture of the Double-bloſſomed Cherry.

The propagation of the Double-bloſſomed Cherry muſt be by budding, or inoculating upon the common wild red Cherry ſtock. Some uſe the black Cherry ſtock for this purpoſe, but it is a wrong practice, for it is too ſtrong a ſhooter; and experience has ſhewn that the red Cherry ſtock is more durable than the black. With good management, a budded ſtock of this will form, in a few years, a well-headed tree which will laſt a conſiderable length of time. Theſe ſtocks are to be raiſed in a nurſery bed from kernels; and when they have been two years planted out they will be fit to inoculate. See Inoculation.

CHESNUT-TREE, *Caſtanea*, according to Linnæus a ſpecies of the Fagus, but by other authors conſidered as a diſtinct genus. The above writer has ranged it among the *monoecia polyandria*; there are three ſpecies of it. 1. The manured Cheſnut. 2. Cheſnut with oval, ſpear-ſhaped leaves ſharply ſawed, which are woolly on their under ſide, and a ſlender knotted catkin. 3. Cheſnut with oblong, oval, ſawed leaves, and a very large, round, prickly fruit.

The Cheſnut is a tree as worthy our care and attention as any tree propagated in this country, either for its uſe or beauty. It is one of the beſt ſort of timber, and affords an excellent ſhade. It grows to a very great ſize and ſpreads its branches freely on every ſide where it has room.

Culture of the Chesnut-tree.

The Cheſnut-tree is propagated by planting the nuts in February, in beds of freſh undunged earth. The beſt nuts for ſowing are thoſe brought from Portugal and Spain. But when theſe cannot be obtained good, it will be better to make uſe of the nuts which have been ripened here, which are nearly equal in goodneſs, only much ſmaller; theſe however are quite as proper to ſow, when the tree is deſigned either for timber or beauty, as the foreign nuts.

They may be raiſed either in nurſeries or in the places where they are to ſtand. If in the nurſery it ſhould be choſen upon poor ground, and, about the middle of February, trenches ſhould be opened, four inches deep and ſix inches aſunder. In theſe the Cheſnuts ſhould be placed regularly, one at the diſtance of every four inches, with the eye laid uppermoſt; and the earth drawn over them. Six of theſe trenches ſhould be made, and then a ſpace left, wide enough to get between to clean them; then another bed of ſix rows, thus proceeding till a ſufficient quantity is planted. In about two months the plants will appear, they ſhould be kept clear from weeds. Let them ſtand here two years, at the end of which time take them up, and plant them at two feet diſtance, in rows, a yard aſunder; the long top-root is to be cut off, and care taken not to injure the other roots.

The beſt time for tranſplanting them is early in March, and care muſt be taken to trim off their ſide ſhoots, which will be a means of making them grow upright and ſtrait. After they have ſtood four years in this place they may be removed to the places where they are deſigned to remain.

When you firſt finiſh your plantation, you muſt be careful that it is not deſtroyed by mice, and other vermin, which is often the caſe; the beſt method of preventing which, is to ſet traps in different parts of the ground.

Horſe CHESNUT, *Æſculus*, a genus of plants, claſſed by Linnæus among the *heptandria monogynia*, and of which there is but one ſpecies.

This tree was in much greater eſteem formerly than at preſent; the reaſon of its being ſo ſeldom planted now, is becauſe the leaves decay early in ſummer, for they frequently begin to fall in July, and occaſion a litter from that time till the leaves are all off; but notwithſtanding this inconvenience, the tree has great merit, for it affords an excellent ſhade in ſummer, and during the month of May, no tree has a greater claim to beauty, for the extremity of the branches are terminated by fine ſpikes of flowers, which are elegantly ſpotted with a roſe colour, and theſe being intermixed with the green leaves, make a noble appearance.

Culture of the Horſe Chesnut.

This tree is propagated by ſowing the nuts early in the ſpring, and if they are well preſerved in ſand during the winter, the plants will ſhoot near a foot the firſt ſummer. If they grow cloſe together, it will be proper to tranſplant them the autumn following, when they ſhould be planted in rows at three feet diſtance, and one foot and a half aſunder in the rows.

Here let them ſtand two years, by which time they will be fit to plant where they are deſigned to remain; they muſt be well ſtaked to prevent their being diſplaced by ſtrong winds, and ſhould alſo have a fence round them, to ſecure them from cattle.

When theſe trees are tranſplanted, their roots ſhould be preſerved as entire as poſſible, for they do not ſucceed well when torn or cut; nor ſhould any of the branches be ſhortened; for there is ſcarce any tree which will not bear amputation better than this; therefore, when any branches are by accident broke, they ſhould be cut off cloſe to the ſtem, that the wound may heal over.

Scarlet-Flowering Horſe CHESNUT, *Pavia*, according to Linnæus, a ſpecies of the Æſculus, but a diſtinct genus according to other authors.

This plant grows naturally in Carolina and the Brazils; it ſeldom riſes higher than eight or ten feet. The flowers are produced in looſe ſpikes at the end of the branches, and are of a bright red colour.

Culture of the Scarlet-Flowering Horſe Chesnut.

It may be propagated by ſowing the ſeeds in the ſpring upon a border of light ſandy earth. When the plants come up, they ſhould be carefully weeded, and tranſplanted the year following. In autumn, when the early froſts begin, they ſhould be covered with mats, and be thus ſheltered for two or three winters, till they have obtained ſtrength to reſiſt the froſt. They ſhould be removed juſt before they begin to ſhoot, and be placed either in a nurſery to be trained up, or where they are deſigned to remain, obſerving, if the ſeaſon is dry, to water them till they have taken root, and likewiſe to lay ſome mulch upon the ſurface of the ground, to prevent its drying too faſt. As the plants advance, the lateral branches ſhould be pruned off, in order to reduce them to regular ſtems, and the ground ſhould be dug about their roots every ſpring.

This tree may alſo be propagated by budding, or inoculating it upon the common, or Horſe-Cheſnut, but this is a very bad method, and the trees thus raiſed never make a good appearance long together, for the common Cheſnut will be twice the ſize of the other, and frequently put out ſhoots below the graft.

CHIVES, an Engliſh name for the ſtamina, or male organs of generation in plants. See the article Stamina.

CHRISTMAS-ROSE, a ſpecies of the Hellebore. See Hellebore.

Herb CHRISTOPHER. See Baneberries.

CHRYSANTHEMUM, *Corn-Marigold*, a genus of plants, ranged by Linnæus among the *ſyngeneſia polygymia ſuperflua*, and of which there are a number of ſpecies, many of them never admitted into gardens; for thoſe that are, the culture of the Candy Chryſanthemum, which is the moſt beautiful of all theſe ſpecies, will be a ſufficient direction.

This is a very elegant plant; the root is long, white, and furniſhed with numerous thick fibres; the ſtalk is round, firm, upright, of a pale green, broke into many branches, and lightly hollow in the centre. The leaves are very beautiful, ſtanding without order, in great numbers; their colour is a greyiſh green, and they are divided in a moſt elegant manner into numerous ſerrated ſegments. The flowers terminate the branches, they riſe on ſmall leafy ſtalks from the boſom of the leaves: their colour, when they firſt open, is a deep yellow, which by degrees grows paler, and they have in the centre a yellow diſk.

This is the natural and ſimple ſtate of the flower; but culture will make them double in various forms, and quill the leaves as elegantly as in the beſt flowers of African Marigolds.

Culture of the Candy CHRYSANTHEMUM.

Let good ſeeds be ſaved from quilled or double flowers of the beſt ſort; ſpread them upon a ſhelf in an airy room, till they are gently hardened, and then put them by till ſpring. Early in the ſeaſon let them be ſown upon a good hot-bed; and brought forward with the uſual care. Where they riſe very thick pull up a few of the weakeſt; and when the reſt by gentle waterings have been brought to due ſtrength for removing, tranſplant them to another hot-bed. On this they are to be brought forward by the ſame care, ſhading and watering them gently till they have taken root; and afterwards encouraging them by ſun and air. From this ſecond they are to be removed to a third hot-bed, and treated in the ſame manner as in the former till they are well rooted: then they muſt have more air by degrees; and when they have grown ſo as to fill the frame, then they muſt be planted out before they are ſtinted by the covers. The ſummer will by this time be ſo well advanced, that they may, without danger, be allowed the full air. Let holes be opened for them in proper parts of the border, where the mould is very fine; and bring them carefully thither with a large ball of the hot-bed mould about their roots. In each of the places where one plant is intended to ſtand for flowering, let two holes be opened, at a ſmall diſtance from one another; and one plant from the hot-bed ſet in each; they muſt be gently watered from time to time in an evening.

In a few weeks they will begin to ſhew their buds for flowering, and the gardener muſt carefully watch their firſt opening. The ſeeds of double flowers do not at all times produce double-flowered plants, though it is a good chance that there will be many. Let proviſion be made at this time for ſuch as are ſingle, and alſo for one of the two when both appear double; for only one is intended to remain in a place. For this purpoſe let holes be opened at proper diſtances in ſome of the wildeſt parts of the garden, among thickets, and in the borders of a court-yard, and fill ſome pots with the richeſt of the garden ſoil. When one of the two plants appears to have ſingle flowers, let it be carefully taken up and planted in the holes opened for that purpoſe, in the places juſt named; and where both are double, let one of them be taken up with the utmoſt care, and planted in a pot. They will now begin to flower, and there will be three diſtinct ſetts of plants, though from the ſame ſeeds, theſe in the wild places will grow to a great bigneſs, and ſpread every way in a pleaſing irregularity. Their flowers will be extremely numerous, and of a fine ſtrong colour.

The ſecond ſort will be thoſe which remain in the borders: theſe will be large and very finely covered with double flowers; ſome of the quilled, and others of the plain kind.

The third ſort is thoſe in pots. Theſe will differ from the others in their being ſmaller; but they will naturally have more and larger flowers. Theſe may alſo be preſerved longer by being brought into ſhelter; and thus will be obtained the fineſt kinds. Let the ſeeds for a ſucceeding year be ſaved from the fineſt and beſt of theſe, the largeſt flowers of the quilled kind, and there will need no farther care about them.

Baſtard CHRYSANTHEMUM, *Silphium*, a genus of plants ranged by Linnæus among the *ſyngeneſia polygamia neceſſaria*, and of which there are five ſpecies. 1. Baſtard Chryſanthemum, with alternate, winged, ſinuated leaves. 2. Baſtard Chryſanthemum, with undivided, ſeſile leaves, growing oppoſite one to the other, and the lower leaves alternate. 3. Baſtard Chryſanthemum with ſawed leaves, upon footſtalks, growing oppoſite to each other. 4. Baſtard Chryſanthemum with ſpear-ſhaped, acutely ſawed leaves, upon footſtalks, growing oppoſite to each other. 5. Baſtard Chryſanthemum with trifoliate leaves.

Culture of the Baſtard CHRYSANTHEMUM.

The plants are all natives of North America, and are propagated by parting of the roots in autumn, after the ſtalks begin to decay; they require no particular management; but ſucceed beſt in a dry ſoil, and a ſhady ſituation.

Hard-ſeeded CHRYSANTHEMUM, *Oſteoſpermum.* Of this genus there are four ſpecies. 1. Hard-ſeeded Chryſanthemum with palmated leaves growing oppoſite each other. 2. Hard-ſeeded Chryſanthemum with branching ſpines. 3. Hard-ſeeded Chryſanthemum with oval, ſerrated leaves. 4. Hard-ſeeded Chryſanthemum with ſpear-ſhaped, imbricated leaves, ſitting cloſe to the ſtalk.

Culture of the Hard-ſeeded CHRYSANTHEMUM.

Theſe are ſhrubby plants, the firſt ſpecies is a native of Virginia, and as it never produces ſeeds in England, is generally propagated by parting of the roots, which ſhould be done in the month of October. They muſt be planted in a light rich ſoil, and a moiſt ſituation; the ſeeds, when procured from America, ſhould be ſown on a bed of rich earth, and watered in dry weather.

The ſecond, third, and fourth ſpecies are natives of Africa, and are too tender to bear the open air of our climate. Therefore in the month of October, they ſhould be placed in the green-houſe, and treated like other hardy green-houſe plants, which require a large ſhare of air in mild weather. About the beginning of May, the plants ſhould be removed into the open air, and placed in a ſheltered ſituation, during the ſummer ſeaſon, when they ſhould alſo have plenty of water.

They may likewiſe be propagated by cuttings planted in any of the ſummer months, upon a bed of light earth; they ſhould be watered and ſhaded till they have taken root; after which they muſt be planted in pots.

CINAMON-TREE, a ſpecies of the Laurus or Bay-tree. See the article BAY-TREE.

CINQUEFOIL, *Potentilla*, a genus of plants ranged by Linnæus among the *icoſandria polygynia*, and of which there are a number of ſpecies, but ſix only are propagated in gardens. 1. Cinquefoil with winged leaves, and a ſhrubby ſtalk, commonly called ſhrubby Cinquefoil. 2. Cinquefoil with alternate, winged leaves, having five oval, crenated lobes, and an erect ſtalk. 3. Cinquefoil with finger-ſhaped, ſawed leaves, hairy on both ſides and an erect ſtalk. 4. Cinquefoil with five wedge-ſhaped, cut leaves, woolly on their under ſide, and an erect ſtalk. 5. Cinquefoil with finger-ſhaped leaves, ſawed at the points, very ſlender, trailing ſtalks, and hairy receptacles. 6. Cinquefoil with trifoliate leaves, and an upright branching ſtalk, and footſtalks riſing above the joints.

Culture of the CINQUEFOIL.

The firſt ſpecies is a native of the northern counties of England, and of ſeveral countries in the north parts of Europe, and is propagated by ſuckers, or by laying down the tender branches, which, after they have taken root, may be cut off from the old plant, and planted in a nurſery for a year or two, before they are ſet in the places where they are deſigned to remain.

This ſort may alſo be propagated by cuttings, which in autumn ſhould be planted in a ſhady border, and the autumn following tranſplanted into the nurſery; they ſhould have a ſhady ſituation, and a cool moiſt ſoil.

The ſecond ſpecies is a native of many parts of Europe, and is propagated by ſowing the ſeeds, or parting the roots in autumn, and will ſucceed beſt in a moiſt ſoil, and a ſhady ſituation.

The third ſpecies grows naturally in France and Italy. It is an annual plant, and may be propagated by ſeeds, in the ſame manner as the ſecond ſort.

The fourth ſpecies is a native of the hilly parts of Europe; it is a perennial plant, and is propagated by parting the roots, as was directed for the ſecond ſort.

The fifth is a native of the ſouth parts of Germany, and has a perennial root; it is propagated by runners, which ſhould be tranſplanted in autumn; it requires the ſame ſoil as the reſt.

The ſixth ſort grows naturally in the ſouth of France; it is an annual plant, and may be propagated by ſowing the ſeeds, and will require no other care than keeping the plants free from weeds.

CION, or GRAFT. See the article GRAFT.

CIRCULATION *of the Sap* in vegetables. See the article SAP.

CIRRHUS, among botaniſts, expreſſes a little fibre, which plants ſend out from their ſtalks, and by which they are attached to other bodies.

CISTUS, a genus of plants, which according to Linnæus comprehends the Ciſtus, ſtrictly ſo called, or the Rock-Roſe, and the Helianthemum, or Dwarf Ciſtus, commonly called the Sun-Flower; but other authors have conſidered them as two diſtinct genera. The above writer has ranged them among the *polyandria monogynia*.

Spotted CISTUS, or ROCK-ROSE. This is a ſhrub of very ſingular beauty, and is valuable for the long time it continues flowering; it riſes to the height of ſeven feet, the ſtem is woody, and the bark is blackiſh. The young ſhoots are ſlender, and of a gloſſy purple. The leaves are placed irregularly, they are long, narrow, waved at the edges, of a deep green above, and white beneath. When the plant is in full perfection, thoſe toward the top are covered with a tranſparent fragrant reſin.

The flower is large, and naturally of a delicate white, but ſometimes it is ſtained toward the edges with red, and ſometimes red entirely.

Culture of the SPOTTED CISTUS.

The culture of this plant is eaſy; it will ſtand our winters in a well choſen ſituation, and adds greatly to the beauty of our plantations of the hardy ſhrubs.

It may be raiſed by cuttings; but the beſt and ſureſt method of having handſome ſhrubs, is to raiſe them from the ſeed. In the laſt week in March prepare a moderate hot-bed, cover it four inches deep with pure mould, without any mixture, and in this ſow the ſeed; cover them an inch deep, and juſt ſprinkle the bed with water when they are in; here let them ſtand till they are four inches high, giving them air at times; and when they have attained this height, prepare a bed for them in the following manner.

In a warm quarter of the ſeminary dig a trench a foot deep, and three feet wide; fill it with freſh cut graſs, and tread it down. Mix three loads of good mould with one of burnt turf, work them well together, and with this compoſt cover the graſs: let the bed riſe a foot and a half above the ſurface, and ſpread each way a foot beyond the outline of the trench; on this bed draw three lines lengthways at equal diſtances, and at every eighteen inches open a ſmall hole; into each of theſe holes put a plant of Ciſtus; cover it carefully, and ſettle the ground by a gentle watering. Keep the bed clear from weeds, and often water the plants ſlightly.

Thus let them ſtand open till winter: then defend the bed by a reed fence at each end, and furze buſhes before and behind, ſtuck up dry, and about two feet high: thus leave them the winter; if it be ſevere ſome of them will periſh, but the remainder will be too hardy for all ſucceeding dangers. In the April following mark out the places where they are to ſtand, and dig large holes for them. Break the earth well about the holes, and into each put a plant.

Chuſe a dripping day for this, it will be the laſt trouble they will require, but ſhould be done carefully. Thus by the aſſiſtance of a few waterings they will take root. The care is now to train them, which is very eaſy; they naturally riſe with an erect trunk, which at about two feet high ſpreads into branches.

The irregular ſhoots muſt be taken off, and the reſt favoured; and thus it is impoſſible to miſs of having handſome, hearty ſhrubs. A dry part of the garden is beſt for them, and they ſhould be ſheltered from the north and eaſt.

It is a wrong method in thoſe who cramp this ſpecies in pots, or ſmother it in a green-houſe: for thus its flowers are few and weak, and always of a dead white; but let its roots have their full and free ſcope of ground, and give the plants air, and they will open by thouſands; the petals will be tinged with a fleſhy purple, and their ſpots will glow.

Dwarf CISTUS. See the article SUN-FLOWER.

CITRON-TREE, *Citrus*, which according to Linnæus comprehends the Aurantium, or Orange-Tree, the Citrus, ſtrictly ſo called, or Citron-Tree, and the Lemon, or Lemon-Tree, but by other authors conſidered as three diſtinct genera. Linnæus has ranged it among the *poliadelphia icoſandria*.

Of the Citron-Tree there are two ſpecies. 1. Citron, with a larger, oblong, pointed fruit, having a thick rough rind, or Sweet Citron.. 2. The Common Citron.

There are ſeveral other varieties of this fruit, with which the Engliſh gardens have been ſupplied from Genoa, where is the great nurſery for the ſeveral parts of Europe for this ſort, as alſo for Orange and Lemon-Trees.

Culture of the CITRON-TREE.

For this we ſhall refer our readers principally to the culture of the Orange-Tree, only obſerving here that the Citron is of a tenderer nature than the Orange, and ſhould therefore have a warmer ſituation in winter; they ſhould alſo continue a little time longer in the houſe in the ſpring, and be carried in again ſooner in the autumn; and as their leaves are larger, and their ſhoots ſtronger than thoſe of the Orange, they require a little more water in the ſummer; but in winter they ſhould have very little water at a time which muſt be the oftener repeated.

The common Citron is much the beſt ſtock to bud, or inoculate any of the Orange or Lemon kinds upon, it being the ſtraiteſt and freeſt growing tree; the rind is ſmoother, and the wood leſs knotty than either the Orange or Lemon, and will take either ſort full as well as its own kind, which is what none of the other ſorts will do: and theſe ſtocks, if rightly managed, will be very ſtrong the ſecond year after ſowing, capable to receive any buds, and will force them out vigourouſly; whereas it often happens, when theſe buds are inoculated into weak ſtocks, they frequently die, or remain till the ſecond year before they put out; and thoſe that ſhoot the next year after budding, are oftentimes ſo weak as hardly to be fit to remain, being incapable to make a ſtrait handſome ſtem, which is the great beauty of theſe trees.

CLARY, *Sclarea*; a genus of plants, ranged by Linnæus among the *diandria monogynia*, and of which there are too many ſpecies for a particular deſcription here. There is only one method of culture for them all.

Culture of the CLARY.

It is propagated by ſeeds, which ſhould be ſown in the ſpring upon a bed of freſh earth. When the plants are fit to be removed, they ſhould be tranſplanted in rows, two feet aſunder, and one foot diſtance in the rows. After the plants have taken root, they will require no farther care, than to be kept clean from weeds. They will thrive upon any ſoil that is not wet.

CLAVICLE, among botaniſts, a term expreſſing a Claſper, or Tendril.

CLEMATIS, *Virgin's-Bower*, a genus of plants, ranged by Linnæus among the *polyandria polygynia*, and of which there are nine ſpecies. 1. Clematis, with undivided leaves, of an oval, but ſomewhat lanceolated form. 2. Clematis, with compound and decompounded leaves, and ſome of the ſmall leaves trifid. 3. Clematis, with ſingle and trifoliate leaves, and the ſmall leaves either entire, or with three lobes. 4. Clematis, with compound leaves, and the ſmall leaves angularly cut, with wedge-ſhaped lobes. 5. Clematis, with winged leaves, and heart-ſhaped, climbing, ſmooth leaves, commonly called Viorna, or Traveller's Joy. 6. Clematis, with climbing tendrils. 7. Clematis, with the lower leaves winged and jagged, and the upper ones ſingle, ſpear-ſhaped, and entire. 8. Clematis, with winged leaves, and ſpear-ſhaped, entire ſmall leaves. 9. Clematis, with ſingle, oval, and ſpear-ſhaped leaves. The ſeveral ſorts of this plant make an elegant appearance among the flowering ſhrubs. The firſt ſpecies is the moſt ſingular; the culture of which will be a ſufficient direction for all the reſt.

The roots of this plant are numerous, long, and ſpreading; yellowiſh on the outer part, and ſtrengthened with a white, woody pith within. The ſtalks are many, and riſe two or three feet high; they are firm, fluted, and divided into ſome few branches. The whole ſtalk is ridged in the manner of a piece of wire, and is a little hairy. The ground colour is a pale green, and the ridges between the hollows are ſtained with purple. The leaves ſtand two at a joint, and the ſtalk ſwells out into a thick knot at their baſe. They have no footſtalks, are large, of an oval ſhape, a firm ſubſtance, and a dull green colour, with very high longitudinal ribs on the under part, and hairy at the edges.

The flowers terminate the ſtalk and branches, theſe are very beautiful, their colour is a perfect violet blue, and they hang drooping. They are large, and each is formed of four petals, oblong and ſharp-pointed; waved a little at the edges, high ribbed, and lightly hairy; and in the centre ſtands a thick downy tuft of a whitiſh colour.

Culture of the CLEMATIS.

This plant thrives beſt, when wild, in a firm, tough ſoil, and where there is ſome little ſhade; for which reaſon the compoſt prepared for it muſt be, equal parts of good garden mould, and firm loamy earth from a paſture; and the place ſome part of the ground where there is a ſhelter from the noon-ſun, and from cold winds.

The uſual and beſt method of propagating it is by parting of the roots. The plants from ſeed are ſometimes bolder and more vigourous, and the flowers better coloured than ordinary for the firſt year; but if the parted roots be managed well, the plants raiſed from them will keep their full perfection; while the others after their firſt bloom will loſe their ſuperiority, and come to an exact equality with the reſt.

The time for parting the roots is October, and they muſt then be planted, in ſome of the above compoſt, at two feet and a half diſtance, and covered two inches. Every year, at the ſame ſeaſon, they muſt be taken up and reduced to a proper bigneſs, and planted again in the ſame place, but in a freſh parcel of the compoſt. After theſe plantings it will always be proper to give them, once or twice, a little water, and at all times keep them clear from weeds. As there is no deſign at any time of ſaving ſeeds, the flowers ſhould be picked off as they decay; by this means, and the aſſiſtance of now and then a watering in dry weather, there will be a ſucceſſion of bloom throughout the whole ſummer.

CLEOME, a genus of plants which has no Engliſh name; there are eight ſpecies of it. 1. Cleome with ſmooth leaves and a fleſh-coloured flower. 2. Cleome with flowers having ſix ſtamina, trifoliate leaves, and ſpear-ſhaped lobes. 3. Cleome with flowers having ſix ſtamina, trifoliate leaves, narrow, ſpear-ſhaped lobes, and pods having two valves. 4. Cleome with flowers having twelve ſtamina, and trifoliate and quinquefoliate leaves. 5. Cleome with flowers having ſix ſtamina and trifoliate leaves, whoſe middle lobe is the largeſt. 6. Cleome with flowers having ſix ſtamina, leaves with ſeven lobes, a prickly ſtalk, and hanging pods. 7. Cleome with flowers having ſix ſtamina, leaves compoſed of five and three lobes, and a prickly ſtalk. 8. Cleome with ſix ſtamina to the flowers, and ſingle leaves, which are ovally ſpear-ſhaped.

The firſt ſort grows naturally in Aſia, Africa, and America. It riſes with an herbaceous ſtalk about a foot high. The flowers, which are of a fleſh colour, terminate the ſtalks in looſe ſpikes. Theſe have four petals, which ſtand erect, and ſpreading from each other.

The ſecond ſpecies grows naturally in the Levant. This has an upright ſtalk about a foot high. The flowers come out ſingly from the ſide of the ſtalks, they are compoſed of four red petals, which grow in the ſame manner as thoſe of the former ſort.

The third ſort is a native of Portugal and Spain. This riſes with an herbaceous ſtalk about a foot high. The flowers come out ſingly from the ſides of the ſtalks and are of a deep red colour.

The fourth ſpecies grows naturally in the iſland of Ceylon. It riſes a foot and a half high. The flowers come out ſingly at the footſtalks of the leaves, their colour is a pale yellow.

The fifth ſort is an annual plant, it riſes to the height of two feet. The flowers come out ſingly from the ſide of the branches upon long footſtalks: they have four large fleſh-coloured petals.

The ſixth ſort grows naturally in Egypt and America. This riſes with a ſtrong, thick, herbaceous ſtalk, two feet and a half high. The flowers come out ſingly from the ſides of the branches, forming a long looſe ſpike at their extremities; this ſpike has ſingle broad leaves, from the boſom of which come out the footſtalks of the flowers which are two inches long, and each ſuſtaining a large fleſh-coloured flower.

The ſeventh ſort grows naturally at the Havannah. This is alſo an annual plant, which riſes near two feet high, branching out on every ſide. The main ſtalk, and alſo the branches, are terminated by looſe ſpikes of purple flowers, each ſitting upon ſlender footſtalks, at the baſe of which is placed a ſingle oval leaf.

The eighth ſort grows naturally in Ceylon; this is an annual plant, which riſes with an herbaceous ſtalk a foot high, garniſhed with long, narrow, ſingle leaves; from the wings of the leaves come out the footſtalks of the flower, each ſuſtaining a ſingle yellow flower.

Culture of the CLEOME.

All theſe plants, except the ſecond and third ſpecies, are natives of very warm countries, and will not thrive in England without an artificial heat, therefore their ſeeds muſt be ſown in ſpring upon a good hot-bed, and when the plants are fit to remove, they ſhould be planted in ſeparate ſmall pots, and plunged into a freſh hot-bed, ſhading them till they have taken freſh root; after which they ſhould have plenty of air in warm weather. When the plants are too high to remain longer in the hot-bed, they ſhould be removed into an airy glaſs caſe, where they may be ſcreened from cold and wet, but in warm weather enjoy the free air. With this management the plants will flower ſoon after, and in autumn they will perfect their ſeeds.

The ſecond and third ſpecies may be ſown in the open borders of the garden, where they are deſigned to remain, for they require no artificial warmth.

CLETHRA, a genus of plants which has no Engliſh name, ranged by Linnæus among the *decandria monogynia*; and of which there is but one known ſpecies.

This is a beautiful ſhrubby plant which grows naturally in Carolina, Virginia, and Penſylvania. It is found in moiſt places, and near the ſides of the rivulets; it riſes to the height of eight or ten feet. The leaves are in ſhape like thoſe of the Alder-tree, but are longer; theſe are placed alternately upon the branches: the flowers are produced at the extremity of the branches, in cloſe ſpikes: their colour is white.

Culture of the CLETHRA.

This ſhrub is propagated by ſeeds, layers, or ſuckers from the root. The ſeeds muſt be procured from the places in which the plants naturally grow, for they will not perfect their ſeed in England. They muſt be ſown in the ſpring in pots placed in a ſhady ſituation, and in autumn removed under a frame for the winter. The plants will come up the ſpring following, and in autumn may be tranſplanted into a nurſery-bed where they muſt ſtand two years, they will then have acquired ſufficient ſtrength, and muſt be tranſplanted to the places where they are deſigned to ſtand.

If it is propagated by ſuckers, they ſhould be carefully taken off in the autumn, with fibres, and planted into a nurſery-bed. In two years they will be ſtrong enough to tranſplant where they are to remain.

The method of propagating this ſhrub by layers, is very tedious, for they are generally two years before they get root.

This ſhrub thrives beſt in moiſt land, and requires a ſheltered ſituation, where it may be defended from ſtrong winds, which frequently break off the branches, where they are too much expoſed to its violence.

CLIFFORTIA, a genus of plants, for which there is no Engliſh name; there are three ſpecies of it. 1. Cliffortia, with heart-ſhaped, indented leaves. 2. Three-leaved Cliffortia, whoſe middle leaf is cut in three parts. 3. Cliffortia, with ſpear-ſhaped leaves, which are entire.

Theſe ſpecies are all natives of the Cape of Good Hope. The firſt ſort riſes with a weak ſhrubby ſtalk, four or five feet high, ſending out many diffuſed branches, which ſpread on every ſide, requiring ſome ſupport; theſe are decorated with broad ſtiff leaves of a greyiſh colour: from the boſoms of which riſe a ſingle flower, ſitting cloſe to the branch, having no footſtalk.

The ſecond ſort has very ſlender, ligneous ſtalks, which muſt be ſupported, otherwiſe they will fall to the ground. The flowers of this come out from the boſom of the leaves, having very ſhort foot-ſtalks; they are ſmaller than thoſe of the former ſort.

The third ſort riſes with a weak ſhrubby ſtalk, about four feet high, ſending out lateral branches; theſe are garniſhed with ſtiff leaves, placed in cluſters, without order.

Between theſe cluſters of leaves the flowers come out in looſe bunches.

Culture of the Cliffortia.

The firſt ſpecies is eaſily propagated by cuttings, which may be planted in any of the ſummer months, and will ſoon take root, provided they are ſcreened from the ſun, and duly watered; when they have taken root, they may be tranſplanted each into a ſeparate ſmall pot, and placed in the ſhade, until they have taken freſh root, after which they may be placed with other hardy exotics, in a ſheltered ſituation till October, when they ſhould be removed into the green-houſe, or placed under a common hot-bed frame, where they may be ſcreened from the hard froſt, but enjoy the free air at all times, when the weather is mild.

The ſecond ſpecies requires the ſame management as the firſt, and is equally hardy, but muſt not be over-watered in winter. The leaves of this ſort continue green all the year.

The third ſpecies is tenderer than either of the former ſorts, for which reaſon, in winter, they muſt be placed in a warm green-houſe, and during that ſeaſon, have but little water. In the ſummer they may be expoſed to the open air in a ſheltered ſituation, but they ſhould not remain too late abroad in the autumn; for if there ſhould be much rain, it would hurt the plants greatly.

CLITORIA, a plant, for which there is no Engliſh name, ranged by Linnæus among the *diadelphia decandria*, and of which there are four ſpecies. 1. Clitoria, with pinnated leaves, or Blue Clitoria. 2. Clitoria, with trifoliate leaves, ſingle flowers, and bell-ſhaped cups. 3. Clitoria, with trifoliate leaves, two flowers joined, and bell-ſhaped cups. 4. Clitoria, with trifoliate leaves, and cylindrical cups to the flowers; theſe plants are natives of both the Indies, and the culture of the firſt ſpecies will be a ſufficient direction for that of the other three.

The Blue Clitoria is a weak and climbing plant: the ſtalks are long and ſlender, purpliſh at the joints when healthy, and elſewhere brown or green. The former is the colour of the lower, the other of the upper parts. The leaves grow with great regularity and beauty, five ſtand upon every footſtalk, and theſe riſe ſeparately and alternately, at equal diſtances on the plants; they are ſingly, of a ſomewhat oval ſhape, and ſharp pointed; they are placed in two pairs, with an odd one at the end of the rib: their colour is a freſh and elegant green, and they are high ribbed.

The flowers grow ſingly at the inſertions of the leaves, one oppoſite to the other, ſo that the whole plant, when well managed, will be covered with them from top to bottom, at proper and equal diſtances, and will thus make a very glorious appearance. They are large, and of a moſt beautiful ſky-blue.

Cuture of the Blue Clitoria.

Early in the ſpring let a hot-bed be made in a careful manner: uſe good dung, ſpread it even, and trample it well down, when it is of a due temper cover it eight inches deep with the fineſt garden-mould, without any addition. On this bed ſow the ſeeds, and cover them half an inch with the ſame mould: let them be ſcattered thin, and when they are covered, give the bed a gentle watering. When the plants are come up, let them be treated carefully and tenderly; and when they are four inches high, tranſplant them into ſmall pots; let theſe pots be filled with the richeſt garden-mould that has been well improved by dung at this time, rotted and well blended with it; ſet one plant carefully in each pot, and gently water it; place theſe pots in a bark hot-bed, let in a little air, and water them gently.

When they have attained ſome conſiderable height and bigneſs, let larger pots be prepared for them: into each of theſe put firſt ſome of the ſame rich earth, and then looſening the earth in each little pot, take it out in a lump; trim off the fibres that hang round the ſurface, ſet the whole upright in the large pot, and fill it up with the earth; place theſe in the bark-bed again, and ſhade and water them till they have taken good root: then remove them into the ſtove in a freſh hot-bed of bark, and let them be carefully watered; thus they will flower as beautifully as in their native ſoil.

CLOVE JULY-FLOWER, or GILLY-FLOWER, a ſpecies of the Carnation. See the article Carnation.

CLUSIA, *The Balſam-Tree*, a genus of plants, of which there are two ſpecies. 1. Cluſia, with thick, ſhining, roundiſh leaves, and a tree-like ſtalk, commonly called Balſam-Tree in America. 2. Cluſia, with veined leaves.

There are two or three varieties of the firſt ſort, which differ in the ſize and colour of their flowers and fruit: one has a white flower and ſcarlet fruit, another has a Roſe-flower, and a greeniſh fruit, and the third has a yellow fruit: but theſe are only ſuppoſed to be ſeminal variations.

The firſt ſpecies is very common in the Britiſh iſlands of America, where the trees grow to the height of twenty feet, and ſhoot out many branches on every ſide; the flowers are produced at the ends of the branches. From every part of theſe trees there exudes a ſort of turpentine, which is called in the Weſt-Indies hog-gum.

The ſecond ſpecies is a native of Campeachy.

This tree riſes to the height of twenty feet; the branches are covered with a woolly down, and the flowers are produced in looſe ſpikes at the end of the ſhoots; theſe are ſmaller than thoſe of the former ſort.

Culture of the Clusia.

The firſt ſpecies may be propagated by cuttings, which when they are cut off the plants, muſt be laid to dry for a fortnight or three weeks, that the wounded part may be healed over, otherwiſe they will rot; when the cuttings are planted, the pots ſhould be plunged into a hot-bed of tanners bark, and now and then gently refreſhed with water. The beſt time for planting theſe cuttings, is in July, that they may be well rooted before the cold comes on in autumn. In winter theſe plants may be placed upon ſtands in the dry ſtove; but if in ſummer they are plunged into the tan-bed, they will make great progreſs, and their leaves will be large, in which the beauty of theſe plants conſiſts.

The ſecond ſpecies is propagated by ſeeds; the plants are tender, for which reaſon they muſt be placed in the tan-bed of the bark-ſtove, otherwiſe they will not thrive in this country. They muſt then be treated in the ſame manner as other tender plants from the ſame climate.

CLUSTER, a ſtalk divided, or branched into ſeveral pedicles, ſuſtaining the flowers or fruits ſet thick together,

ther, in an oblong form.

CLUTIA, a genus of plants, for which there is no Engliſh name; there are four ſpecies of it. 1. Clutia, with ſpear-ſhaped leaves ſitting cloſe to the ſtalks. 2. Clutia, with oval entire leaves, and flowers growing from the ſides of the branches. 3. Clutia, with heart-formed ſpear-ſhaped leaves. 4. Clutia, with entire ſpear-ſhaped pointed leaves, having foot-ſtalks.

The two firſt ſorts are natives of Africa. The firſt riſes with a ſhrubby ſtalk to the height of ſix or eight feet, putting out many ſide branches, garniſhed with ſmall leaves, ſitting cloſe to the branches. The flowers come out from the joints, at the ſitting on of the leaves, toward the upper part of the branches; theſe are ſmall and of a greeniſh white.

The ſecond ſort riſes about the ſame height with the firſt, but the ſtem is ſtronger. The branches are garniſhed with leaves much larger than thoſe of the firſt. The flowers are much the ſame both in ſhape and colour.

The third ſort grows naturally in India; this, in its native climate, riſes with an upright ſhrubby ſtalk, to the height of twenty feet: but with us it ſeldom exceeds four feet; it ſends out many branches at the top, ſo as to form a large ſpreading head.

The fourth ſpecies grows naturally in the Bahama iſlands, and alſo near the Havannah; it riſes about twelve or fourteen feet high, with ſeveral ſhrubby ſtems, which divide into many branches. The flowers come out in long looſe ſpikes from the ſide of the branches; their colour is white, with yellow ſummits.

Culture of the CLUTIA.

The two firſt ſpecies are eaſily propagated by cuttings, during any of the ſummer months, when they will ſoon take root; then plant them each into a ſeparate ſmall pot, and place them in a ſheltered ſituation, where they may remain till the middle of October, or later, if the weather continues mild; then remove them into the green-houſe, and ſet them where they may have the free air in mild weather, for they only require to be protected from froſt. In ſummer place them abroad, in a ſheltered ſituation, with other hardy exotic plants.

The third ſpecies is alſo propagated by cuttings, during the ſummer ſeaſon: but the cuttings ſhould be laid in an airy place for a few days, that their wounded parts may heal before they are planted; theſe muſt be ſet in ſmall pots, and plunged into a moderate hot-bed of tanners bark; and if the ſeaſon is very warm, the glaſſes ſhould be ſhaded in the heat of the day, but they muſt be watered very ſparingly, for much wet will rot them. When they have taken root and begin to ſhoot, they muſt have a greater ſhare of air, and be inured by degrees, to bear it openly; then they ſhould be each planted into a ſeparate pot, and placed in the ſhade till they have got freſh root.

In the ſummer they ſhould have free air conſtantly in warm weather, but they muſt be ſcreened from heavy rains: and in winter placed in an airy glaſs-caſe, where they may enjoy the ſun.

The fourth ſpecies may be propagated in the ſame manner as the third, with this difference only, that it requires a ſtove to preſerve it through winter, and ſhould have very little water.

COCKSCOMB, or AMARANTH. See the article AMARANTH.

CODLING-TREE, a ſpecies of the Apple-Tree. See APPLE-TREE.

COFFEE-TREE, *Coffea*, a genus of plants, ranged by Linnæus among the *pentandria monogynia*, and of which there is but one ſpecies.

This tree is a native of Arabia Felix, and Ethiopia, where it riſes above ſixteen or eighteen feet high: but in England it rarely riſes to more than twelve; it is an evergreen, and makes a beautiful appearance at every ſeaſon in the ſtove, but particularly when it is in flower.

The Coffee-Tree is now propagated in great plenty in many parts of America: but the produce of theſe countries are greatly inferior to that of Arabia.

Culture of the COFFEE-TREE.

This plant is propagated by ſeeds, which ſhould be ſown ſoon after they are gathered from the tree; for if they are kept but a ſhort time out of the ground, they will ſpoil, which is the reaſon that this tree has not been ſpread into more different countries, for the ſeed will not keep long enough to be ſent into any place. In order therefore to cultivate this plant in any part of the world, it is abſolutely neceſſary to have it carried thither growing. The berries of this plant are commonly ripe with us in April, at which time they ſhould be ſown in pots of freſh light earth, covering them half an inch thick with the ſame light earth; then plunge the pots into a moderate hot-bed of tanners bark, obſerving to refreſh them often with water, as alſo to raiſe the glaſſes in the heat of the day, to admit freſh air; and in very hot weather it will be proper to ſhade the glaſſes with mats, otherwiſe the earth in the pots will dry too faſt, and prevent the vegetation of the ſeeds. It muſt be obſerved, that the taking off the pulp of the berries, which has been by ſome people directed as abſolutely neceſſary, is a great miſtake. When this plant is removed, great care ſhould be taken not to injure the roots, and alſo preſerve the earth to the roots; nor ſhould they be kept any time out of the ground: for if their fibres are ſuffered to dry; they are very ſubject to mould and periſh.

The ſoil in which this tree thrives beſt, is compoſed in the following manner: one load of freſh, light, loamy earth, one load of rotten cow-dung, with half a load of ſea-ſand: theſe are to be well mixed together, and laid in a heap ſix months before it is uſed, in which ſpace it muſt be turned ſeveral times.

COLE-SEED, or RAPE-SEED. See the article RAPE-SEED.

COLE-WORT, a ſpecies of the Cabbage, and cultivated in the ſame manner, See CABBAGE.

COLLIFLOWER. See CAULIFLOWER.

Foreign COLT'S-FOOT, *Cacalia*, a genus of plants, ranged by Linnæus among the *ſyngeneſia polygamia*, and of which there are eight ſpecies. 1. Foreign Colt's-Foot, with kidney-ſhaped leaves, which are ſharply indented. 2. Foreign Colt's-Foot, with ſmooth heart-ſhaped leaves, ſawed on their edges. 3. Foreign Colt's-Foot, with a triangular leaf, eared at the baſe, and white flowers. 4. Foreign Colt's-Foot, with an herbaceous ſtalk, heart-ſhaped, ſinuated leaves, and five florets in each empalement. 5. Foreign Colt's-Foot, with the leaf and appearance of Fig-Marigold, commonly called African-Tree Groundſel. 6. Foreign Colt's-Foot, with a compound ſhrubby ſtalk, and plain ſpear-ſhaped leaves, and the foot-ſtalks having ſcars. 7. Foreign Colt's-Foot, with a ſhrubby ſtalk, guarded on every ſide with broken rough foot-ſtalks. 8. Foreign Colt's-Foot, with a ſhrubby ſtalk, oblong oval leaves, and three lines connected to the baſe of the foot-ſtalk.

The firſt ſpecies grows naturally in Auſtria and the Helvetian mountains, but is frequently preſerved in curious gardens for the ſake of variety; it has a fleſhy root, which ſpreads in the ground, from which ſprings up many leaves, ſtanding on ſingle foot-ſtalks; between theſe the ſtalk riſes about a foot and a half high, branching toward the top. The branches are terminated by purpliſh flowers, growing in a ſort of umbel.

The ſecond ſort has the appearance of the firſt; but the ſtalks riſe higher, and the leaves have much longer footſtalks than thoſe of the firſt. The flowers are of a deeper purple colour.

The third ſort grows naturally in North-America. This has a perennial creeping root, which ſends out many ſtalks riſing to the height of ſeven or eight feet, and are terminated by umbels of white flowers.

The fourth ſort is a native of America, it has a perennial root, and an annual ſtalk which riſes four or five feet high, terminated by umbels of yellowiſh, herbaceous flowers.

The fifth ſort grows naturally at the Cape of Good Hope, it riſes with ſtrong round ſtalks, to the height of ſeven or eight feet, which are woody at bottom, but ſoft and ſucculent upward, ſending out many irregular branches, at the extremity of which the flowers are produced in ſmall umbels; they are white, tubulous, and cut into five parts at the top.

The ſixth ſort grows naturally in the Canary iſlands. This riſes with a thick fleſhy ſtem divided at certain diſtances, as it were into ſo many joints; each of theſe diviſions ſwell much larger in the middle, than they do at each end; toward their extremities they are garniſhed with long, narrow, ſpear-ſhaped leaves; as theſe fall off they leave a ſcar at the place, which always remain on the branches. The flowers are produced in large cluſters at the extremity of the branches, they are tubulous, and of a faint Carnation colour.

The ſeventh ſort is a native of the Cape of Good Hope, it reſembles the ſixth in its form and manner of growth; only the leaves do not fall off entire like thoſe of the other, but break off at the beginning of the footſtalk. This ſort hath not as yet produced any flowers in England.

The eighth ſort has been long known in the Engliſh gardens, it riſes with many ſucculent ſtalks from the root, as large as a man's finger. This ſort very rarely flowers in England.

Culture of the Foreign Colt's-Foot

The firſt and ſecond ſpecies are propagated by parting of their roots, for they ſeldom produce good ſeeds in England. The beſt time to tranſplant and part their roots is in the autumn. They require a loamy ſoil, and a ſhady ſituation.

The third and fourth ſorts are propagated in great plenty both by their ſeeds, and their ſpreading roots. The roots ſhould be tranſplanted in autumn; they require a moiſt ſoil, and a ſhady ſituation.

The fifth and ſixth ſorts are eaſily propagated by cuttings, during the ſummer months. Theſe cuttings ſhould be laid to dry for a fortnight, that the wound may be healed before they are planted. If they are planted in June or July they will take root in the open air. They ſucceed beſt in a light ſandy earth. In winter they ſhould be placed in an airy glaſs caſe, where they may enjoy the ſun; and in mild weather admit the air. They muſt always be protected from the froſt, and have but little water.

The ſeventh and eighth ſorts are propagated in the ſame manner as the fifth and ſixth, only that the ſeventh requires to be kept drier both in winter and ſummer.

COLUMBINE, *Aquilegia*, a genus of plants ranged by Linnæus among the *polyandria pentagynia*, and of which there are three ſpecies. 1. Columbine with crooked nectaria, called double ſtarry Columbine. 2. Columbine with ſtrait nectaria ſhorter than the flower petals, which are ſpear-ſhaped. 3. Columbine with ſtrait nectaria, and ſtamina longer than the flower petals.

The firſt ſpecies grows naturally in moſt countries in Europe; the ſecond is a native of Switzerland, and the third of Virginia and Canada. The ſame method of culture, is proper for them all.

The double ſtarry Columbine has a large whitiſh root, long, and thick, divided into many parts, hung with long fibres, and of many years duration. The ſtalk is a yard high, ſlight, upright, branched, reddiſh, and a little hairy. The leaves are large, but compoſed of many parts, theſe are diſpoſed in threes on branched footſtalks, and the principal of them are divided lightly into three lobes by indentings. Their colour is a faint blueiſh, or greyiſh green.

The flowers are numerous, large and beautiful: they are compoſed of a great number of plain oblong petals, and theſe ſpread themſelves out in a radiated or ſtarry form: the outer ones being largeſt, and thoſe within ſmaller to the centre. Their colour, when moſt perfect, is of a fine high ſcarlet; but, in ſome of the plants, it varies from this into a faint, yet not unpleaſing red; in others it runs through all the changes of blue, purple and fleſh colour, even to abſolute white, and in ſome flowers there will be an agreeable mixture of green. All theſe colours will be obtained from the ſeeds of one plant, therefore they are no more than ſeminal varieties; and they will alſo often, from the ſame ſeed, differ in their form.

Culture of this Columbine.

This plant is too hardy to require any great care in its preſervation, but it is from a proper culture only that the varieties already mentioned are to be obtained.

The gardener muſt make ſuch a compoſt for it as nature directs, light, and yet rich, in the following manner; mix a barrow of the fineſt paſture-mould, a buſhel of pond-mud, and two pecks of rotted cow-dung, with one peck of river ſand; theſe muſt be well wrought together. Chuſe a place in the ſeminary which is on a riſing poſition, and has a good deal of ſhade; dig out the mould, and in Auguſt put in the compoſt ſix inches deep.

Seeds muſt be ſaved from ſome ſtrong and well growing plants of the common Columbine; and as they are ripe in July they will have had a fortnight to harden in before they are wanted for ſowing. They muſt now be ſcattered moderately thick upon the bed prepared for them; chuſe the evening of a ſhowery day to ſow them. Sift over them a quarter of an inch of dry compoſt, and lay a piece of Hawthorn buſh upon the bed. In ſpring the young plants will appear. The weeds muſt be carefully taken up, and the plants thinned where they ſtand too cloſe. From this time they muſt be often weeded, and occaſionally watered. When they have a month's growth, let them be thinned again, taking up the weakeſt plants: theſe may be planted out upon another piece of ground, the others remaining undiſturbed till the latter end of September; and being all that time kept carefully weeded and watered.

The latter end of September prepare a bed for them in the garden, let the ſame compoſt be uſed, but a place choſen a little more open, than that in the nurſery. The plants muſt be ſet regularly in this bed at two feet diſtance. Thus they muſt remain all the winter. In ſpring they muſt be weeded, and the mould ſhould be broke between them with a trowel. In June following they will flower. There will be found among them ſome of the curious ſorts, and ſome of the common; but the latter will be very fine in their kind. As ſoon as the flowers fade cut down the ſtalks near the ground, and throw a covering of freſh compoſt, an inch thick upon the bed. The next year they will flower ſtronger, and two or three of them ſhould then be marked for ſeed. This ſhould be ſown in the ſame manner for the firſt, and the proceſs repeated every year. Thus by degrees the gardener will have all the elegant kinds.

The fine roots muſt be preſerved with care, and managed well, or they will degenerate. Every autumn they muſt be taken up, and when too large, parted; and every time this is done they muſt be allowed new compoſt. There is little trouble in raiſing this plant from ſeeds, therefore it ſhould be conſtantly repeated.

Inverted COLUMBINE. This Columbine is not a diſtinct ſpecies from the common kind, but one of theſe innumerable varieties which riſe from well ripened and well managed ſeeds.

The root is compoſed of numerous fibres, hung to a long and firm head. The leaves are ſupported on long, ſlender, but firm footſtalks, of a reddiſh colour, and are compoſed of many diviſions, placed in threes: theſe ſeparate parts are obtuſe, and of a blueiſh green. The ſtalk is two feet high, purpliſh, tolerably firm, but ſlender. On it ſtand ſeveral leaves irregularly, reſembling thoſe from the root; and at the top of it divides into many branches. The flowers are large, double, and very beautiful: their colour often varies; they are blue, red, or white, and ſometimes mixed of two of theſe colours in a very pleaſing manner. They are thick ſet with curled and rounded parts, and their nectaria or horns ſtand forward; the flower appears fixed to its footſtalk by the wrong end, and this ſingularity adds to the elegance

Culture of this COLUMBINE.

Several of the double Columbines ripen ſeeds as perfectly as the ſingle, and it is from ſome of theſe that ſeed for the above variety muſt be ſaved; for this purpoſe let the gardener mark two or three plants which have the largeſt and faireſt flowers: and from thoſe ſave the ſeeds, as we have directed on former occaſions; when this is thoroughly hardened, let it be ſown in the nurſery; and as the plants come up, let them be weeded, watered, thinned, and every way aſſiſted in their growth: and when they have once flowered, let them be brought into the garden.

The variety is endleſs that will thus riſe from one parcel of ſeed collected from one plant; there will be ſingle and double, roſy, ſtarry, and inverted, perfect and degenerate flowers: in colour there will be all the ſhades of blue, white, and red, and all colours that can be derived from various mixtures of theſe; among the reſt there will be ſome variegated, ſtreaked, clouded and ſpotted; theſe are the fineſt, and from theſe, ſeeds ſhould be afterwards ſaved; theſe numerous varieties ought to recommend the plant to the gardener; nor is there a little regard due to its form and time of flowering; this ſeaſon is a kind of middle ſpace between the ſpring and autumn flowers: and there are fewer particular to it than to either of the others. A buſhy plant, which produces abundance of bloom at ſuch a time, is therefore valuable.

COLUTEA, *Bladder Senna*, a genus of plants, ranged by Linnæus among the *diadelphia decandria*, and of which there are three ſpecies. 1. Colutea, with the ſmaller leaves heart-ſhaped, or the common Bladder Senna. 2. Shrubby Colutea, with oblong oval leaves. 3. Herbaceous Colutea, with narrow leaves.

The firſt ſpecies grows naturally in Auſtria, France, and Italy, and is commonly cultivated in the nurſery gardens as a flowering ſhrub to adorn plantations; the ſecond ſort is tender, being a native of Africa, and will not bear the ſevere winters of this country; the third ſpecies is alſo a native of Africa, and is a low annual plant, which ſeldom grows more than a foot and a half high. The flower it produces being ſmall, and the plant having very little beauty, it is preſerved in botanic gardens only, for the ſake of variety.

Culture of the COLUTEA.

The firſt ſpecies is propagated by ſowing the ſeed in a bed of common earth: and when the plants are come up, they muſt be kept clear from weeds; and in the autumn following tranſplanted either into nurſery-rows, or in the places where they are deſigned to remain; they ſhould not be ſuffered to be long in the nurſery before they are tranſplanted.

The ſecond ſort is propagated by ſeeds ſown early in the ſpring, upon a warm border of light earth. The plants will flower in Auguſt; and if the ſeaſon proves favourable, ripen their ſeeds very well.

In autumn they ſhould be tranſplanted young: and if they ſtand in a ſheltered ſituation, they will live in the open air for three or four years.

Jointed-Poded COLUTEA, a ſpecies of Coronilla. See the article CORONILLA.

COMFREY, *Symphytum*, a genus of plants, claſſed by Linnæus among the *pentandria monogynia*, and of which there are three ſpecies. 1. Comfrey, with oval ſpear-ſhaped, running leaves. 2. Comfrey, with the upper leaves placed oppoſite. 3. Comfrey, with oval leaves, and ſhort foot-ſtalks.

The firſt ſpecies is a native of England, and grows by the ſide of ditches, and other moiſt places, in moſt countries in Europe.

The ſecond ſpecies grows naturally in Germany; and the third on the ſides of rivers near Conſtantinople.

Culture of the COMFREY.

Theſe are all perennial plants, and may be propagated either by ſowing their ſeeds in the ſpring, or parting their roots in the autumn.

They ſhould be planted about two feet aſunder, and will require no care but to be kept clean from weeds, as they will grow in any ſoil or ſituation.

COMMELINA, a genus of plants, which has no Engliſh name; there are five ſpecies of it. 1. Commelina, with unequal petals, oval, ſpear-ſhaped, pointed leaves, and a ſmooth trailing ſtalk. 2. Commelina, with unequal petals, oval, ſpear-ſhaped leaves, and a ſingle, upright, rough ſtalk. 3. Commelina, with unequal petals, ſmooth, ſpear-ſhaped, obtuſe leaves, and a creeping ſtalk. 4. Commelina, with equal petals, and oval, ſpear-ſhaped leaves, which are hairy on their under-ſide. 5. Commelina, with equal petals, thick foot-ſtalks to the flower, and narrow, ſpear-ſhaped leaves.

The firſt ſort grows naturally in the Weſt-Indies, and Africa; it is an annual plant, and has ſeveral trailing ſtalks, two or three feet long.

The leaves are of a deep green. The flowers, which are blue, come out from the boſoms of the leaves.

The ſecond ſort grows naturally at Penſylvania; it riſes upon upright, ſlender, rough, herbaceous ſtalks, about two feet high; the leaves are like thoſe of the firſt. The flowers come out from the boſom of the leaves, at the upper part of the ſtalk, ſitting upon ſhort foot-ſtalks; theſe are of a pale, blueiſh colour.

The third ſort grows naturally in Africa; this hath many trailing ſtalks three or four feet long. The leaves of this are like thoſe of the firſt, but the flowers are larger, and of a deep yellow.

The fourth ſort grows naturally near Vera Cruz, in New Spain; from the root of this riſes one or two inclining ſtalks; the flowers are produced toward the upper part of the ſtalks, from the boſom of the leaves, ſtanding upon ſlender foot-ſtalks; they are compoſed of three blue petals, pretty large and roundiſh, and three ſmaller, which are green.

The fifth ſort grows naturally in the Weſt-Indies: this hath trailing ſtalks like the firſt. The flowers are produced at the end of the ſtalks, upon thick foot-ſtalks, three flowers generally ſitting on each; they have three equal large petals of a ſky blue, and three ſmaller, which are blue.

Culture of the COMMELINA.

All the ſpecies are propagated by ſeeds. The firſt will thrive in the full ground: but if the ſeeds are ſown in autumn, upon a warm border of light earth, the plants will riſe early in the ſpring, and from theſe good ſeeds may be expected; whereas thoſe which are ſown in the ſpring, often lie long in the ground, and rarely ripen their ſeed. After the plants come up, they require no other care than being kept clean from weeds.

The ſecond ſpecies has a perennial root; this ſeldom ripens its ſeeds in England, but the root ſends out off-ſets, by which the plant is eaſily propagated; if this ſort is planted in a ſheltered ſituation, it will live through the winter in the full ground. The beſt time to tranſplant and part theſe roots, is about the end of March.

The other ſorts are tender, ſo their ſeeds muſt be ſown on a moderate hot-bed in the ſpring; and when the plants are two inches high, they ſhould be tranſplanted to a freſh hot-bed to bring them forward.

When they have taken root, admit the freſh air every day, when the weather is warm, which will prevent their growing up weak. In June they muſt be carefully taken up, and planted on a warm border of light earth, carefully ſhading them till they have taken root, after which they will require no other care than to be kept clean from weeds; with this management the plants will flower, and produce good ſeeds.

COMPARTMENTS, in gardening, are beds, plats, borders, and walks, laid out according to the form of the ground, and depend more on a good fancy than on any ſet of rules for their conſtruction.

They are alſo ſometimes merely diverſities, or knots of flower-gardens, or parterres, of which there are infinite variety, according to the fancy of the deſigner. Plain Compartments are pieces of ground, divided into equal ſquares and flower-beds, marked out by lines, and made of regularly equal length and breadth.

Some allow to theſe ſquares borders of two feet broad, if the plat of ground be ſmall, and if larger, of fect, and edge the borders with box, or with upright, hardy Thyme; the alleys up between, are to be laid with ſand or gravel, and kept clean weeded.

COMPOST, in huſbandry and gardening, ſeveral ſorts of ſoils, or earthy matter, mixed together, in order to make a manure for aſſiſting the natural earth in the work of vegetation, by way of amendment or improvement.

Compoſts are various, and ought to be different, according to the different nature or the quality of the ſoils which they are deſigned to meliorate, and according as the land is either light, ſandy, looſe, heavy, clayey, or cloddy. A light, looſe land requires a compoſt of a heavy nature, as the ſcouring of deep ditches, ponds, &c. ſo, on the other hand, land that is heavy, clayey, or cloddy, requires a compoſt of a more ſprightly and fiery nature, that will inſinuate itſelf into the lumpiſh clods, which, if they are not thus managed, would very much obſtruct the work of vegetation.

The great uſe of compoſts is for ſuch plants as are preſerved in pots, or tubs; or ſometimes it is uſed for ſmall beds, or borders of flower-gardens: but it is too expenſive to make compoſts for large gardens, where a great quantity of ſoil is required. In making of compoſts, great care ſhould be had that the ſeveral parts are properly mixed together, and not to have too much of any one ſort thrown together.

COMPOUND-FLOWER, is that conſiſting of ſeveral florets, or ſemi-florets, or both together, included in a common cup, ſo as to make up one whole flower.

CONCEPTACULUM, a kind of pericarpium, compoſed of ſoft and leſs rigid valves, and containing only one cavity.

CONE, a term made uſe of by botaniſts to ſignify a hard dry ſeed-veſſel, of a conical figure, for the moſt part ſcaly, adhering cloſely together, and ſeparating when ripe.

CONSERVATORY. See GREEN-HOUSE.

CONVOLVULUS, *Bindweed.* See the article BINDWEED.

Scarlet CONVOLVULUS, *American Jaſmine.* See the article *American* JASMINE.

CORAL-TREE, *Erythrina,* a genus of plants, ranged by Linnæus among the *diadelphia decandria,* and of which there are ſix ſpecies. 1. Low Coral-Tree, with a very long ſpike of flowers, and thick root, commonly called the Carolina Coral-Tree. 2. Smooth American Coral-Tree. 3. Prickly Three-leaved American Coral-Tree, with a very red flower. 4. Smaller Three-leaved American Coral-Tree, with blacker ſpines, and ſeeds. 5. Three-leaved American Coral-Tree, with acute-pointed leaves, and ſcarlet ſeeds. 6. Coral-Tree, without ſpines, having a longer cloſe flower.

The firſt ſort grows naturally in South Carolina. It ſeldom riſes more than two feet high. The leaves are of a deep green, and ſhaped like the point of an arrow. The ſtalks are terminated by a long ſpike of ſcarlet flowers.

The ſecond ſort riſes to the height often of ten or twelve feet, ſending out many ſtrong branches, garniſhed with leaves of a dark green. The flowers come out at the end of the branches, in ſhort thick cloſe ſpikes, of a deep ſcarlet colour, which make a moſt elegant appearance.

The flowers ſeldom appear till the leaves drop, ſo that the branches are often naked when the flowers are out.

The third ſort differs from the ſecond, in having its trunk, branches, and the foot-ſtalks of the leaves, armed with ſhort crooked ſpines, the leaves and flowers being like thoſe of the ſecond ſort.

The fourth ſort has ſhrubby ſtalks, which divide into branches; the leaves are ſmaller than thoſe of the two laſt ſorts: the flowers are of a paler ſcarlet, and grow in looſer ſpikes.

The fifth ſort grows naturally at La Vera Cruz, and the Cape of Good Hope; the ſtalks do not riſe ſo high as the ſecond ſort: the leaves are alſo much ſmaller, and have long acute points; the flowers grow in very long cloſe ſpikes, and are of a beautiful ſcarlet colour.

The ſixth ſort grows in Jamaica, and ſome of the other iſlands in America; the ſtalk is not very large, but ſhoots out into branches at a little diſtance from the ground, which grow erect, and form a buſhy ſhrub; the flowers come out at the end of the branches in ſhort ſpikes; the ſtandard of the flower is long, and the ſides turn down over the wings, which are alſo longer than thoſe of the other ſpecies, and the whole flower is more cloſed.

Culture of the CORAL-TREE.

Theſe plants when they produce their flowers, are the greateſt ornaments of the ſtoves yet known; but though in their native places of growth they produce plenty of flowers every year, yet it is ſeldom they flower in this country, or indeed in any of the northern parts of Europe.

Theſe plants are beſt propagated by ſeeds, when they can be procured from the countries where they naturally grow; theſe ſeeds ſhould be ſown in ſmall pots, and plunged into a moderate hot-bed, where if they are good, the plants will come up in four or five weeks. When the plants are about two inches high, let them be carefully ſhaken out of the pots, and planted each in a ſeparate ſmall pot, filled with light earth, and plunged into a moderate hot-bed of tanners bark: here let them be ſhaded from the ſun till they have taken new root, after which they ſhould have a large ſhare of air admitted to them, whenever the weather is mild. Let them be frequently refreſhed with ſmall quantities of water, and in autumn be removed into the ſtove. As the plants grow in ſtrength, they may be more hardily treated.

They may alſo be propagated by cuttings planted in pots, during any of the ſummer months, and treated like other ſeedling plants.

CORIANDER, *Coriandrum,* a genus of plants, ranged by Linnæus among the *pentandria digynia,* and of which there are only two ſpecies. 1. Coriander, with globular fruit, or the greater Coriander. 2. Coriander, with twin fruit.

Theſe are annual plants; the firſt ſpecies is a native of Italy, and is cultivated in gardens and fields for the ſake of the ſeeds. The ſecond ſpecies is a native of the ſouthern parts of Europe, and is to be met with in botanic gardens only, where it is preſerved for the ſake of variety.

Culture of the CORIANDER.

They are propagated by ſowing the ſeeds early in the ſpring, in an open ſituation, upon a bed of good freſh earth. When the plants are come up, they ſhould be hoed to about four inches diſtance every way, clearing them from weeds. If the ſeeds of this plant are ſown in autumn, they will riſe much ſtronger, and produce a greater quantity of ſeeds than thoſe ſown in the ſpring.

CORK-TREE, a ſpecies of the Oak-Tree. See the article OAK-TREE.

CORN-FLAG, *Gladiolus,* a genus of plants ranged by Linnæus among the *triandria monogynia,* and of which there are ſix ſpecies. 1. Corn Flag with ſword-ſhaped leaves, and flowers growing at a diſtance from each other. 2. Corn Flag with ſword-ſhaped leaves and imbricated flowers. 3. Corn Flag with narrow leaves, a very ſingle ſtalk, and ſpiked flowers. 4. Corn Flag with narrow leaves, flowers growing at a diſtance from each other, and the tube longer than the margins of the petal. 5. Corn Flag with a branching ſtalk, and narrow leaves. 6. Corn-Flag, with a branching ſtalk, flowers growing in heads, upon footſtalks, and a tuburous root.

Culture of the CORN FLAG.

Theſe are all perennial plants: the firſt ſpecies grows naturally in arable land, in the ſouthern parts of Europe; and if once planted in a garden, will multiply ſo faſt, without any culture, as to become a troubleſome weed.

The ſecond kind grows naturally in Ruſſia, and is propagated as eaſily as the firſt.

The third, fourth, fifth, and fixth ſorts are natives of Africa, and will not bear the open air of this country in the winter.

They are propagated by off-ſets, which ſhould be planted in pots filled with light kitchen-garden earth; and in winter placed in the green-houſe, to protect them from froſts.

Theſe plants are alſo propagated by ſeeds which are frequently perfected in England; theſe ſhould be ſown about the end of Auguſt in pots filled with light earth, and placed in a ſhady ſituation, till the middle of September; then the pots ſhould be removed, where they may have the ſun great part of the day. In October place them under a garden frame, where they may have the air in mild weather. In ſpring the young plants will appear, and they muſt be watered gently once in eight or ten days. In May remove the pots to a ſheltered ſituation, where they may enjoy the morning ſun till noon. If the ſeaſon proves dry, refreſh them, now and then, with water.

About the end of June the leaves will decay, then the roots muſt be taken up, and mixed with ſand, and kept in a dry room till the end of Auguſt, at which time they ſhould be planted again. The roots are ſo ſmall that four or five may be planted into each half-penny pot filled with light earth: place them where they may have the forenoon ſun till the middle of September; then they ſhould have a warmer ſituation till October, when they muſt be place under a hot-bed frame, as before, and treated in the ſame manner during the winter ſeaſon.

In the ſpring they muſt be placed in the open air, till their leaves decay, when they may be taken out of the ground and treated as before. The roots, by this time, will have grown to a large ſize, therefore they ſhould have a ſeparate half-penny pot, and be treated in the ſame manner as the old roots.

CORNICULATE, horned; thus we ſay Corniculate pods, &c.

CORN MARIGOLD, *Chryſanthemum*. See the article CHRYSANTHEMUM.

COROLLA, among Botaniſts, is the moſt conſpicuous part of a flower. It expreſſes the coloured tender part, which ſurrounds the organs of generation. The part it is compoſed of are called petals; if it conſiſt only of one piece, it is called monopetalous: if of more, it is ſaid to be dipetalous, tripetalous; and ſo on, as it conſiſts of two, three, four, or more parts. See PETAL, &c.

COROLLISTÆ, among the botanical authors, are thoſe who have attempted the eſtabliſhing the claſſes and diſtinctions of plants, on the different form of the Corolla, or leafy part of the flower, without paying the due regard to the apices, ſtamina, and piſtillum, the parts of fructification contained within it. Of theſe are Riverius and Tournefort.

COROLLULA, among botaniſts, a term uſed to expreſs thoſe little partial flowers, which together conſtitute the whole compound ones. They are of two kinds, the tubulated, and the ligulated; the former are always furniſhed with a campanulated limb, divided into four or five ſegments: the latter or ligulated Corollula, have a flat linear limb, terminated by a ſingle point or by a broader extremity, divided into three or five ſegments.

CORONA, any thing growing on the head of a ſeed, the Corona of ſeeds are of various kinds; they are ſometimes ſimple, conſiſting only of a dentated membrane; ſometimes pappoſe, conſiſting of a downy matter. The downy matter in ſome caſes is immediately affixed to the ſeed, in others it has a pedicle growing from it; and it is ſometimes compoſed of ſimple filaments, ſometimes it is ramoſe.

CORONATED, furniſhed with a Corona. See the former article.

CORONILLA, according to Linnæus the name of a genus of plants, comprehending Coronilla, ſtrictly ſo called, or jointed podded Colutea; Emerus, or Scorpion Senna; and Securidaca, or Hatchet-Vetch; but by other authors conſidered as three diſtinct genera. Linnæus has alſo ranged it among the *diadelphia decandria*. There are eight ſpecies of it. 1. Shrubby Coronilla with the ungues of the flowers twice the length of the cup, or the Emerus, or Scorpion Senna. 2. Shrubby Coronilla with five ſpear-ſhaped lobes, and ſpear-ſhaped ſtipulæ. 3. Shrubby Coronilla with roundiſh ſtipulæ. 4. Shrubby Coronilla with eleven lobes, and the outer one the largeſt. 5. Herbaceous Coronilla with hooked, ſword-ſhaped pods, or Securidaca, or Hatchet Vetch. 6. Herbaceous Coronilla with five, taper, erect, jointed pods. 7. Coronilla with a climbing, flaccid ſtalk. 8. Smooth leaved herbaceous Coronilla, with numerous, erect, rounded, and knotted pods, or various flowered Coronilla.

The firſt ſpecies grows naturally about Geneva, Montpelier, Salernum, and Vienna. The ſecond is a native of the ſouth of France, and the third of Spain and Italy. The fourth and ſixth ſpecies are natives of Crete. The fifth ſort grows naturally in the corn fields of Spain. The ſeventh is a native of South-America, and the eighth, of Germany, and moſt other parts of Europe.

Culture of the CORONILLA.

The firſt ſort is propagated by ſowing the ſeeds in March, upon a bed of light ſandy earth, it muſt be kept clean from weeds and watered in dry weather, which muſt be continued when the plants come up. About Michaelmas, draw out the largeſt and tranſplant them into the nurſery, allowing the diſtance of one foot between each plant in rows three feet aſunder. The following Michaelmas, thoſe left in the ſeed bed may be tranſplanted in the ſame manner. Here they ſhould remain two years, at the end of which time they may be planted into the places where they are to remain.

This ſort may alſo be propagated by laying down the tender branches, which will take root in a year's time, after which they may be tranſplanted into the nurſery, and managed in the ſame manner as the ſeedling plants.

The ſecond and third ſpecies are propagated by ſeeds, which in April muſt be ſown upon a bed of light earth. When the plants are fit to be removed, tranſplant them into a warm border, and carefully ſhade them till they heve taken root; after which they will require no other cultnre than being kept clear from weeds.

The fourth and ſixth ſpecies are alſo propagated by ſeeds, which muſt be ſown in ſpring either on a gentle hot-bed, or on a warm border of freſh light earth. When the plants are fit to be removed, they ſhould be tranſplanted either into pots, or into a bed of good rich earth, at about four or five inches diſtance every way. Here let them remain till they have obtained ſtrength enough to be planted out for good, either into pots filled with light freſh earth, or into a warm border.

The ſeeds of the fifth ſpecies muſt be ſown in the ſpring, on borders of light freſh earth.

When the plants come up, they ſhould be thinned to the diſtance of two feet one from another, and kept clean from weeds, which is all the culture they require.

The ſeventh ſpecies muſt be raiſed from ſeeds as directed for the former ſorts, but this will require to be raiſed and preſerved in the bark ſtove.

The eighth ſpecies will require more care in its culture, to keep it within bounds than to make it grow, any unfavourable part of the garden may be allotted for it; the beſt will be on the ſide of ſome wilderneſs quarter, and it ſhould be raiſed from ſeeds in the place where it is to continue. The ſeeds ripen in Auguſt, and muſt be ſown in April; when the plants come up they ſhould be thinned to two feet diſtance: after this they may be taken up every year in October, and reduced to a due compaſs, for otherwiſe they will quickly overrun a large tent of ground.

CORTUSA, *Bear's Ear Sanicle*, a genus of plants ranged by Linnæus among the *pentandria monogynia*, and of which there are two ſpecies. 1. Cortuſa with cups ſhorter than the Corolla or purple Cortuſa. 2. Cortuſa with cups longer than the Corolla. One method of culture is proper for them both.

The leaves of the purple Cortuſa riſe in a fine large cluſter, on long reddiſh footſtalks; they are broad, deeply jagged at the edges, and of a fine green on the upper ſide, but greyiſh underneath. The flowers crown the ſummit of the ſtalk, which is round, upright, and eight inches high, in a very elegant head; they are about ten in number, and each hanging its long delicate footſtalk, they ſpread out, and droop downward; they are large, of a delicate purple, and have a light fragrance.

Culture of the Cortusa.

This plant requires no ſhelter in our gardens; it may be planted in an open ſituation and in the common mould. The roots increaſe abundantly, and the beſt method to propagate the plant is by parting them, as there is no advantage in raiſing it from ſeed, for the flower admits no variegation. There is this farther diſadvantage, the ſeeds ripen poorly with us. The plants ſhould be allowed a foot diſtance and often watered.

CORYMBYFROUS *Plants*, are ſuch as have a compound diſcous flower, but their ſeeds deſtitute of down. They bear their flowers in cluſters, ſpreading 'round in the form of an umbrella. Of this kind are the common Marygold, common Daiſy, Camomile, &c.

CORYMBUS, among ancient botaniſts, ſignified cluſters of Berries, as thoſe of Ivy, &c. It is alſo uſed by modern botaniſts, to ſignify a compound diſcous flower, which does not fly away in down.

COSTMARY, a ſpecies of the Tanſey or Tanzy. See the article Tansey.

COTTON, *Goſypium*, a genus of plants of which there are four ſpecies. 1. Cotton with leaves having five lobes, and an herbaceous ſtalk. 2. Cotton with entire leaves having three lobes. 3. Cotton with hand-ſhaped leaves, having five ſpear-ſhaped lobes, and a ſhrubby ſtalk. 4. Fineſt American Cotton with a green ſeed.

The firſt ſpecies is the common Levant Cotton, which is cultivated in ſeveral iſlands of the Archipelago, likewiſe in Malta, Sicily, and the kingdom of Naples; it is ſown in tilled ground in the ſpring of the year, and is ripe in about four months after, when it is cut down in harveſt as corn in England, the plants always periſhing ſoon after the ſeeds are ripe: this plant grows about two feet high, with an herbaceous ſtalk, garniſhed with ſmooth leaves divided into five lobes. The ſtalks ſend out a few weak branches upward, which are garniſhed with leaves of the ſame form but ſmaller. The flowers are produced at the extremities of the branches; theſe have two large empalements, the outer is cut into three parts, and the inner into five. The petals of the flower are of a pale yellow colour, inclining to white; theſe are ſucceeded by oval capſules, which open in four parts, having four cells, filled with ſeeds wrapped up in a down, which is the Cotton.

The ſecond grows naturally in ſeveral iſlands of the Weſt Indies; this riſes with a ſhrubby ſmooth ſtalk four or five feet high, ſending out a few ſide branches, which are garniſhed with ſmooth leaves divided into three lobes. The flowers are produced at the ends of the branches, which are ſhaped like thoſe of the former ſort, but are larger, and of a deeper yellow. The pods are larger, and the ſeeds are black.

The third ſort has a perennial ſhrubby ſtalk, which riſes ſix or eight feet high, and divides into many branches, which are ſmooth. The flowers are produced at the ends of the branches; theſe are larger than thoſe of the two former ſorts, and are of a deep yellow colour. The pods of this ſort are larger than thoſe of the former.

The fourth ſort is a native of the Eaſt or Weſt-Indies; this is an annual plant, which periſhes ſoon after the ſeeds are ripe. It riſes to the height of three feet or more, and ſends out many lateral branches, theſe are hairy, and garniſhed with leaves, having in ſome three, and in others five acute-pointed hairy lobes. The flowers are produced from the ſides, and at the ends of the branches, which are large, of a dingy ſulphur colour, each petal having a large purple ſpot at the baſe; the flowers are ſucceeded by oval pods, which open in four cells, filled with oblong green ſeeds, wrapped up in a ſoft down. The ſtaple of this is much finer than either of the other ſpecies, and the Cotton from this ſhrub is preferable to any other yet known.

Culture of the Cotton.

Theſe, being all tender plants, will not thrive in the open air in England. The firſt and fourth ſorts will ripen their ſeeds here, if they are ſown early in the ſpring, upon a good hot-bed; and, when the plants come up, tranſplanted each into a ſeparate pot, and plunged into a hot-bed of tanners-bark, to bring them forward. When they are grown too tall to remain under the frames, they ſhould be removed into the tan-bed of the ſtove, and ſhifted into larger pots if their roots have filled the others. With this management their flowers will appear in July, and towards the end of September the ſeeds will ripen, and the pods will be as large as thoſe produced in the Eaſt and Weſt Indies; but if the plants are not brought forward early in the ſpring, it will be late in the ſummer before the plants will appear and there will be no hopes of the pods coming to perfection.

The ſhrub Cotton will riſe from the ſeeds very eaſily, if they are ſown upon a good hot-bed, which ſhould be done early in the ſpring, and if brought forward in the ſame manner as has been directed for the former ſorts, the plants will grow five or ſix feet high the ſame ſummer; but it is difficult to preſerve the plants through the winter, unleſs they are hardened gradually in Auguſt during the continuance of the warm weather, for being forced on in ſummer renders them incapable of reſiſting the leaſt injury. They ſhould then be placed in the bark-ſtove in autumn, and kept in the firſt claſs of heat; this is the only method of preſerving them through our winters.

Silk COTTON-TREE, *Bombax*, a genus of plants ranged by Linnæus among the *monodelphia polyandria*, and of which there are three ſpecies. 1. Silk Cotton with fingered leaves and a prickly, ſhrubby ſtalk. 2. Silk Cotton with fingered leaves and a ſmooth ſtalk. 3. Silk Cotton with five cornered hairy leaves, and a jointed herbaceous ſtalk.

The firſt and ſecond ſpecies are natives of the Eaſt and Weſt Indies. The firſt ſort riſes to the height of five or ſix feet, and ſpreads naturally into many branches. The leaves are large and beautifully formed; each is divided, nearly to the ſtalk, into five parts, which ſpread as the fingers of a hand: their colour is a very deep green on the upper ſide, but paler underneath; and on the ſtalk there are prickles. The flowers are large and very elegant, their colour is a pale yellow, often tinged with purple; and their cups are a ſingular beauty in the plant, they are vaſt, rounded, ribbed and jagged. The flowers do not terminate the branches, but grow in great number from the ſides of the ſhoots. After theſe come the ſeed-veſſels, which are rounded but pointed, and contain each, in four cells, many large ſeeds, wrapped round in a ſnowy and ſoft down, which is Cotton.

The ſecond ſort grows with a very ſtrait ſmooth ſtem to a great height. The branches toward the top are garniſhed with leaves compoſed of five, ſeven, or nine oblong, ſmooth, little leaves, which are ſpear-ſhaped. The flower buds appear at the ends of the branches, and ſoon after the flowers expand, which are compoſed of five oblong, purple petals. When theſe fall off, they are ſucceeded by oval fruit, as large as a ſwan's egg, having a thick ligneous cover, which, when ripe, opens in five parts, and is full of a dark ſhort Cotton, incloſing many roundiſh ſeeds, as large as ſmall peaſe.

The third ſort is a native of the Spaniſh Weſt Indies; it has ſoft herbaceous ſtalks very full of joints. The leaves come out on long hairy footſtalks at the top of the plant; their under ſides are covered with a ſhort, brown, hairy down, and are cut on their edges into five angles. Theſe plants have not as yet flowered in England; but the down, incloſed in the pods, which are procured from the places where it is native, is of a moſt beautiful purple.

Culture of the SILK COTTON-TREE.

The plants of all theſe ſorts are propagated by ſeeds, which muſt be ſown on a hot-bed in the ſpring; thoſe of the two firſt ſorts will be ſtrong enough to tranſplant in a ſhort time after they are up, when they ſhould be each planted in a ſeparate ſmall pot, and plunged into a moderate hot-bed of tanners bark, being careful to ſhade them from the ſun, till they have taken freſh root, after which they ſhould have a large ſhare of air admitted to them when the weather is warm, to prevent their being drawn up weak. In this bed they may remain till autumn, provided there is room for the plants under the glaſſes. When the heat of the bed declines, the tan ſhould be ſtirred up, and freſh added to it; and if the plants have filled the pots with their roots, they ſhould be ſhifted into pots a little larger: but there muſt be care taken not to over-pot them, for nothing is more injurious to theſe plants, than being put into large pots, in which they will never thrive.

In autumn they muſt be removed into the bark-ſtove, where they muſt conſtantly remain, being too tender to thrive in this country, in any other ſituation. In winter they muſt have but little water, eſpecially if they caſt their leaves: but in ſummer they ſhould be conſtantly refreſhed with it, and in warm weather muſt have plenty of freſh air admitted to them.

Theſe plants require a large ſtove where they may have room to grow.

COVENTRY-BELLS, a ſpecies of the Campanula. See the article CAMPANULA.

COWSLIP, a ſpecies of the Primroſe. See the article PRIMROSE.

Jeruſalem COWSLIP, a ſpecies of Lungwort. See the article LUNGWORT.

CRAB-TREE, a ſpecies of the Apple-Tree. See APPLE-TREE.

CRANE'S-BILL, *Geranium*. See the article GERANIUM.

CRANIOLARIA, a genus of plants, which has no Engliſh name, and of which there are only two ſpecies. 1. Craniolaria, with heart-ſhaped, angular leaves. 2. Craniolaria, with ſpear-ſhaped, indented leaves.

The firſt ſpecies grows naturally in the neighbourhood of Carthagena, in New Spain; it riſes with a branching ſtalk, about two feet high: the branches come out oppoſite, the flowers are produced from the ſides and ends of the branches, ſtanding on ſhort foot-ſtalks, having an inflated ſheath or cover, out of which the tube of the flower ariſes, which is ſeven or eight inches long, and very ſlender, but at the top is parted into two lips, the under being large, and divided into three broad ſegments, the middle being larger than the other two; the upper lip is roundiſh and entire; the flowers are ſucceeded by oblong fruit, having a thick dry ſkin, which opens lengthways, incloſing a hard furrowed nut, with two recurved horns.

The ſecond ſpecies grows naturally at the Havannah, and ſome of the other iſlands in America. This riſes with a ſhrubby ſtalk to the height of ten or twelve feet, dividing upward into a few branches; the flowers are produced from the ſides of the branches, growing ſeveral together on the ſame foot-ſtalk: they are of a greeniſh yellow, with browniſh ſpots on the inſide; they have a ſwelling tube, which is recurved, and the brim is ſlightly divided into five unequal ſegments.

Culture of the CRANIOLARIA.

The firſt ſort is an annual plant; the ſeeds muſt be ſown in the ſpring, upon a hot-bed; and when the plants are fit to remove, they muſt be each planted in a ſeparate ſmall pot, and plunged into a moderate hot-bed, obſerving to ſhade them carefully from the ſun till they have again taken root; after which the freſh air may be admitted to them freely, which will prevent their being drawn up weak.

Theſe plants are too tender to bear the open air of our climate, for which reaſon, when they are grown too large to remain under the frames, they muſt be removed into the bark-ſtove, and plunged into the tan-bed, where they will flower, and with good management often perfect their ſeeds; theſe ſhould remain on the plant till they drop, otherwiſe they will not grow; for the outer covers of thoſe ſeeds ſplit open, and drop off before the ſeeds are quite ripe.

The ſeeds of the ſecond ſpecies muſt be ſown on a hot-bed in the ſpring: and when the plants are fit to remove, they ſhould be each planted into a ſeparate ſmall pot, and plunged into a freſh hot-bed, where they muſt be ſhaded from the ſun till they have again taken root, after which they ſhould have freſh air admitted to them daily. In autumn remove them into the bark-ſtove, and plunge them into the tan-bed, after which they may be treated in the ſame manner as other tender plants from the ſame countries.

CRESS, *Naſturtium*, there are many ſpecies of this genus, but the three following are the only ones cultivated in gardens. 1. Creſs, with oblong leaves, ending in many points, and an erect ſtalk; or common garden Creſs. 2. Creſs, with the lower leaves divided, but thoſe on the ſtalks oblong and entire, and an erect branching ſtalk; or broad-leaved garden Creſs. 3. Creſs, with leaves ending in many points, and trailing ſtalks; or Swine's Creſs.

The firſt ſort is commonly cultivated in gardens as a ſallad herb; there is a variety of this, whoſe lower leaves are much curled on the edges; this was formerly cultivated in greater plenty than at preſent.

The ſtalks of the ſecond ſpecies riſe much higher, and branch out more than thoſe of the common ſort, and the branches grow more upright; this was formerly much more cultivated than at preſent.

The curled ſort is preſerved in gardens for the ſake of variety, but the common ſort is equally as good for uſe.

Culture of the CRESS.

The ſeeds of the common ſort muſt be ſown during the winter ſeaſon upon a moderate hot-bed, and covered with mats or glaſſes to preſerve it from great rains or froſt, both which would injure it greatly at that ſeaſon.

In the ſpring it may be ſown in warm borders, where it muſt be defended from cold winds. When it is intended to continue all the ſummer, it muſt be ſown upon ſhady borders, and the ſowing repeated every third day, otherwiſe it will be too large for uſe, for at that ſeaſon it grows very faſt.

The curled ſort ſhould be ſown ſomewhat thinner than the common ſort, and when the plants come up they ſhould be drawn out, ſo as to leave the remaining ones half an inch aſunder, which will give them room to expand their leaves.

In order to preſerve the variety with curled leaves diſtinct, all ſuch plants as appear inclined to degenerate from their kind, muſt be carefully ſeparated, leaving only ſuch as have their leaves very much curled, being careful not to intermix them together.

When the ſeeds are ripe, the plants ſhould be drawn up, and ſpread upon a cloth two or three days to dry, after which the ſeeds ſhould be beaten out, and preſerved in a dry place for uſe.

Indian CRESS, *Tropæolum*, a genus of plants, ranged by Linnæus among the *octandria monogynia*, and of which there are only two ſpecies. 1. Indian Creſs, with leaves, which are almoſt divided into five lobes, and obtuſe petals to the flowers, called the common, or ſmall Indian Creſs. 2. Indian Creſs, with entire leaves, and acute-pointed briſtly petals to the flowers, commonly called Indian Creſs.

Of the firſt ſpecies there are two varieties, one with a deep orange-coloured flower, inclining to red, and the other with a pale yellow flower; it has a trailing herbaceous ſtalk, garniſhed with leaves almoſt circular, they are ſmooth and of a greyiſh colour; the flowers come out from the wings of the ſtalk, ſtanding upon long ſlender foot-ſtalks; they are compoſed of five acute-pointed petals, the two upper of which are large and rounded; the three under are narrow, their tails join together, and are lengthened into a tail two inches long.

This plant flowers from Midſummer till the froſt puts a ſtop to it in autumn.

The ſecond ſort grows naturally about Lima; this has larger ſtalks, leaves, and flowers, than the former; the borders of the leaves are indented almoſt into lobes, and the petals of the flowers are rounded at their points. There are two colours of this ſort as in the former, and one with double flowers, which is propagated by cuttings, for it does not produce ſeeds.

Culture of the INDIAN CRESS.

Theſe are annual plants, though they may be continued through the winter, if they are kept in pots, and ſheltered in a good green-houſe.

They are ſometimes propagated by cuttings, but the uſual method is to raiſe them from ſeeds; theſe ſhould be ſown in April, in the places where they are deſigned to remain, which ſhould be where the ſtalks may have ſupport: for they will climb ſix or eight feet high, when they are trained up, and then their flowers make an elegant appearance: but when they trail upon the ground, they ſoon wither, and their beauty is entirely loſt.

Sciatica CRESS. See the article CANDY-TUFT.

CROCUS, *Saffron*, a genus of plants, ranged by Linnæus among the *triandria monogynia*, and of which according to ſome authors there are four ſpecies, but the above-named writer enumerates two only. 1. Crocus, with a ſpatha of one valve near the root, with a very long tube to the flower, being the cultivated or true Saffron. 2. Crocus, with a two leaved ſpatha, and a ſhort tube to the flower.

There are many ſeminal variations of this flower in our gardens; the deſcription and culture of two or three of them will be a ſufficient direction to the gardener for the reſt.

The firſt ſpecies is the plant which produces that well-known drug called Saffron; this has a roundiſh, bulbous root, as large as a ſmall nutmeg; from the upper part of the root come out the flowers, which together with the young leaves, whoſe tops juſt appear, are cloſely wrapped about by a thin ſpatha, or ſheath, which parts within the ground, and opens on one ſide; the tube of the flower is very long, ariſing immediately from the bulb, without any foot-ſtalk, and at the top is divided into ſix oval obtuſe ſegments, which are equal, and of a purple blue colour. In the bottom of the tube is ſituated a roundiſh germen, ſupporting a ſlender ſtyle, which is not more than half the length of the petal, crowned with three oblong golden ſtigmas, which is the Saffron.

This plant flowers in October, and the leaves keep growing all the winter, but it never produces any ſeeds here.

Culture of this CROCUS.

It is propagated by parting the roots; the fibres of theſe roots periſh when their leaves do, and they may therefore, like all other roots of the ſame kind, be taken up as ſoon as the leaves appear dead, and laid by in a dry place till the beginning of Auguſt, at which time they muſt be planted again; they ſhould be planted in holes made with a dibble, about two inches deep, and at two inches diſtance from one another; and rake the earth over them till they are covered about an inch deep.

The leaves are ſo ſhort when the flowers appear, that it ſeems produced on a naked ſtalk, but as that decays they grow to a conſiderable length; theſe look but unſightly when the flowers are gone, but they ſhould not be cut, for that greatly weakens the root for the next ſeaſon's flowering.

Polyanthus CROCUS. This is a moſt beautiful variation of the common Crocus; the root is roundiſh, white within, and covered with a brown ſkin; the leaves are numerous: and thoſe, and the baſes of the flowers, with the ſcabbard which riſes from this part, and ſerves them as a cup, unite in a manner together, and form one common body; the leaves are long and very narrow, they naturally grow in an arched form, riſing circularly from the baſe, and drooping at the point: their colour is a fine deep green, and each has along the middle a line of perfect white.

The flowers riſe from the head of this united body, with long tubes, which ſerve them as ſtalks and they are large and extremely beautiful; the cluſter of them from one head is often eight or ten, and they diſplay themſelves in various poſitions, ſome upright, ſome drooping inwards, and others turning out, ſo that the whole tuft repreſents a noſegay contrived in the moſt artful manner. The body of the flower conſiſts of ſix ſegments, riſing from the tube, and theſe ſo large, that they reſemble petals; their ground colour is a greyiſh or pearly white, but they are ſtained and diverſified in the moſt elegant manner with purple, and crimſon; the outer ſegments uſually have the colour deepeſt, and in greateſt quantity; the inner ones are ſometimes perfectly white, and ſometimes lightly tinged.

Culture of this CROCUS.

Parting of the roots is the common method of propagating it: but to proceed for ever in this manner, is always to ſee the ſame dull round of flowers; the attention of the curious ſhould therefore be employed on the raiſing them from ſeeds; this, though ſlow, will be always found the true method to produce variety. The way to have fine flowers, is to favour the ripening of the ſeeds; for if they are poor, though they contain the principles of vegetation, little will be produced from them either of beauty or of value. The beſt plants to fix upon for this purpoſe, are thoſe in which the flowers are moſt numerous, and have the ſtrongeſt purple; theſe muſt be choſe as ſoon as the flowers are open enough to ſhew their beauty, when the gardener muſt take all the lower flowers off the cluſter, leaving only three, or at the moſt four, of the upper ones to blow to perfection. Let him give the plant a little water every day, and always ſhade it from the noon ſun: this will keep it much longer in flower, and conſequently the ſeeds will ripen gradually. When the flower is fallen, the ſame care muſt be taken that the plant may not be hurt: let it have water moderately once in three days; clear away all weeds, and break the earth round about it with a trowel, but not too near the main root. The firſt week in May the ſeeds will be ripe. Let the head be carefully taken off, and laid upon a papered ſhelf, and then prepare the following compoſt for them.

Mix together a barrow of freſh and light paſture earth, half a barrow of pond mud, a buſhel of old cow-dung, and half a buſhel of ſand: beat and break theſe all very well together, and ſift the whole through a coarſe wire ſieve, throwing away the lumps, which will be principally the worſt part of the cow-dung.

Bore half a dozen holes at diſtances, in the bottom of a box made of rough boards, and cover them with ſome coarſe gravel, that the water may always have free paſſage.

Pour in the mould, and ſet the box upon ſome brick ſupports, one brick thickneſs above ground; clear the ſeeds from the heads, and ſpread them at a little diſtance, when they have lain four days, and the mould in the box is ſettled, level the ſurface, and ſcatter them upon it carefully. The firſt week in June is the beſt time for this ſowing. The ſeeds muſt be covered a finger's breadth with the ſame compoſt ſifted over them, and the place where the box ſtands muſt be open to the morning ſun only. When the mould is too dry, it muſt have a gentle watering in an evening; if very hard rains come, a covering ſhould be hung over the box; and care muſt be taken to deſtroy all ſhoots of weeds as ſoon as they appear. At the approach of winter the box muſt be removed to a place where it may have all the ſun it can. In ſpring it muſt be removed to its former ſituation, and treated as before.

Thus the foundation is laid for a fine variety of flowers. Weeds and moſs are to be cleared off as they riſe, and the young plants muſt have frequent and very gentle waterings.

When the leaves are decayed let ſome freſh earth be ſifted over the roots, about a quarter of an inch in thickneſs;

ners, and toward winter let the box be again removed into its ſunny ſituation. The ſucceeding ſummer, when the leaves are decayed, let the mould be carefully broke and looſened in the box. A border muſt now be dug up for the roots; and the beſt ſoil for them is the common garden mould, with ſome freſh paſture earth dug in among it. Let as much of this ſoil as will make two inches in depth be kept off, and draw lines lengthways, and acroſs at three inches diſtance, and the earth well broken that lies out.

Now all the mould which was in the box muſt be carefully ſifted, and the roots taken out. Set one of theſe upright in the centre of every ſquare marked upon the border by the line; and ſift the mould over them which was left out for that purpoſe.

Thus let them remain, keeping the bed clear from weeds till ſpring; and then let the mould be carefully and gently ſtirred at the ſurface, and a quarter of an inch of freſh ſifted on. The ſame muſt be done in autumn when the leaves are decayed, and by this method there will be produced an original ſtock of the fineſt kinds; among which there is no doubt of meeting with many new ones: after which they may be multiplied by parting the roots, which ſhould be done once in three years.

Their proper management is then as follows; every off-ſet muſt be planted in a ſeparate hole two inches deep, made with a trowel, that the mould may lie looſe; and thoſe which are intended to produce off-ſets ſhould be ſuffered to remain in the ground the full time already mentioned. The others ſhould be taken up when the leaves are decayed, and planted again in September.

Single and Double CROCUS. This flower is worthy the attention of the curious. The root is roundiſh, covered with a brown bark, and furniſhed at the baſe with many fibres. The leaves are numerous, very narrow, and of a conſiderable length; they terminate in a point; and they riſe, together with the ſtalks, ſurrounded by a fine pale membrane. Their colour is a lively but not very deep green; and they have a faint white rib along the middle. The flowers are large and beautiful; they riſe from the root with a long tube, ſurrounded by a thin and ragged membrane; and they are of a moſt elegant gold yellow: the diviſion, as in the other Crocus's, is into ſix long and large ſegments, reſembling ſo many petals; and of theſe three ſtand more outward than the others; theſe three have each a rib of purple running all their length, deeper toward their bottom and paler upwards; and the inner ſegments have the tips purple. Within the flower ſtand three filaments of a yellow colour, and tipped with golden buttons; and in the midſt of this a ſingle ſtyle. The ſcabbard or film ſurrounding the lower tube of the flower, is formed of a ſingle piece; and from the body of the flower there run down this tubular part ſix lines of purple continued from thoſe which run along the ſegments.

This is the appearance of the flower in its common ſingle ſtate. But when, by art, it is rendered double, the beauty is incomparably greater. The ſegments become numerous, and their colour a much brighter yellow than in the ſingle flower. The bottoms of the ſegments often ſwell out into a kind of arched or rounded buttons; and theſe are throughout, except for a yellow line along each edge, of a deep purple. The veins of purple run along the ſegments in greater number, two, three, or more on each; and ſending off ſide branches at ſmall diſtances, theſe intermingle among one another, which gives the whole flower a moſt elegant aſpect; and this is the condition in which the Crocus makes its moſt gorgeous appearance.

Culture of this CROCUS.

The root of this flower will produce off-ſets in abundance; but if they have not freſh ſoil every year, they will decline in luſtre. The beſt method is to raiſe the plant from ſeed, the manner of which has been already deſcribed in treating of the *Polianthus* Crocus; the only difference is that this kind requires a richer ſoil, which may be obtained by mixing cow-dung with the mould, as that fertilizes without heating.

CROWFOOT, *Ranunculus*. See the article RANUNCULUS.

Muſk-CROWFOOT, *Adoxa*, a genus of plants ranged by Linnæus among the *octandria tetragynia*, and of which there is only one ſpecies.

This is a perennial plant which grows naturally in the woods in England, and moſt other countries in Europe.

Culture of the Muſk CROWFOOT.

It is propagated by parting the roots in autumn, which ſhould be planted in the ſhade of trees or ſhrubs; this done it requires no farther care.

CROWN IMPERIAL, a ſpecies of the Fritilaria. See the article FRITILARIA.

Several varieties of this flower are preſerved in curious gardens, but as the ſame method of culture is proper for them all, we ſhall only make particular mention of the moſt elegant, *viz.*

Majeſtic CROWN IMPERIAL. The root is bulbous, but of a particular form, rounded, thick, and flatted, and is compoſed of many thick pointed juicy ſcales; of a yellowiſh white, more or leſs tinged with purple, and of a diſagreeable rank ſmell. From this, early in ſpring, burſts through the mould a vaſt firm ſhoot, cluſtered with leaves, and loaded with buds of many flowers. As the plant advances in height it acquires a more regular form. The ſtalk riſes two feet and a half in height, and is very thick, firm, ſtriated, and green. The leaves are placed irregularly, and in great numbers about the lower part of it: they are long, moderately broad, of a fine green, ſharp-pointed, and undivided at the edges. For ſome ſpace above theſe leaves the ſtalk is naked, ſmooth, of a faint yellowiſh green tinged with a purpliſh caſt; and frequently ſpotted very beautifully. At the top ſtands an elegant head, compoſed partly of leaves and partly of flowers. The flowers are eight or ten in number, and they riſe each between two of thoſe leaves which form the cornuoſe head. Theſe leaves are placed obliquely upwards, and form a crown like that of the Pine-Apple. The flowers hang down; they are of a deep yellow; and ſometimes there run through it ſtripes of a fainter gold, very pleaſing. Each flower has its ſeparate footſtalk, ſometimes theſe, with the crown of leaves terminate the whole; but when the plant is in its higheſt perfection, the main ſtalk is not terminated by the head of flowers and leaves, but continued through them: and after running up naked and ſlender to a little height above the tops of the leaves, it has a ſecond ſmaller crown of leaves and flowers, diſpoſed exactly as the firſt, but leſs; and above theſe there will alſo ſometimes riſe a third.

The flowers in theſe upper ſtages perfectly reſemble thoſe of the lower, but they are leſs beautiful.

Culture of the CROWN IMPERIAL.

The common method of propagating this plant is by its off-ſets; theſe are produced freely, and they grow with little trouble to perfection; but in this, as in all other inſtances where there can be varieties obtained, the manner of raiſing it from ſeed is much preferable to that of raiſing it by off-ſets.

For this purpoſe, let the ſeeds be ſaved from ſuch plants as are robuſt, and have a great number of flowers. Theſe muſt be ſown in autumn upon any of the light compoſts, and the young plants weeded and watered. When their leaves decay, let them be covered with a finger's breadth of the ſame ſoil ſifted over them. The next year let them be planted at ſix inches diſtance in another bed, and there ſtand to flower. Then mark the fineſt, and tranſplant them into a new bed, at two feet diſtance; and if theſe double and triple crowned kinds do not appear from this ſowing, let the ſeeds of thoſe ſelected plants be ſown again, and treated with the ſame care. When the fineſt of this ſecond ſowing have been planted out in their proper beds, let them be propagated by off-ſets.

The true management is to take the roots up as ſoon as the leaves decay, and hardening them in the air, to keep them out of the ground till Auguſt. They muſt then be planted at a yard diſtance: and this repeated every year, taking off the off-ſets, and planting them in a bed in the nurſery, till they are of a bigneſs to flower in perfection.

CUCKOW PINT, *Arum.* See the article Arum.

CUCULLARIA, a ſpecies of the Fumatory. See Fumatory.

CUCUMBER, *Cucumis*, a genus of plants ranged by Linnæus among the *monoecia ſyngeneſia*, and of which there are ſeven ſpecies, but two only are uſually cultivated in our gardens. 1. The common garden Cucumber. 2. The long Turkey Cucumber. The firſt ſort is the Cucumber which is generally cultivated for the table, and is ſo well known as to need no deſcription. The ſecond ſort is the long Turkey Cucumber, which is alſo pretty well known in England. The ſtalks and leaves of this are much larger than thoſe of the common ſort. The fruit is generally twice the length and has a ſmooth rind. There are green and white fruit of this, as well as of the common ſort, which differ in but little, except colour. The white is leſs watery than the green, for which reaſon it is held in greater eſteem.

Culture of the Cucumber.

To raiſe early Cucumbers, the generality of gardeners put their ſeeds into a hot-bed before Chriſtmas, but where there is the conveniency of a ſtove for raiſing theſe plants it is attended with leſs trouble than a common hot-bed, and is a much ſurer method, becauſe the plants will have a much greater ſhare of air than under frames; therefore when there is this convenience, the ſeeds may be ſown in ſmall pots, and plunged into the tan-bed, in the warmeſt part of the ſtove. The ſeeds ſhould be at leaſt three or four years old. When the plants are up, and begin to put out their rough leaf, there ſhould be a ſufficient number of ſmall pots filled with good earth, and plunged into the bark-bed, that the earth may be warmed to receive the plants, which ſhould be pricked into theſe pots, two plants in each; but when they have taken root and are ſafe, the worſt ſhould be drawn out, being careful not to diſturb the roots of that which is left.

In the management of theſe plants there muſt be great care taken not to give them too much water, and it will be very proper to put the water into the ſtove ſome hours before it is uſed, that the chill may be taken off, but there muſt be caution uſed not to make it too warm, for that will deſtroy the plants; they ſhould alſo be guarded from the moiſture which frequently drops from the glaſſes of the ſtoves which is very hurtful to theſe plants while young.

Prepare a proper quantity of new dung for making a hot-bed to receive them. The dung ſhould not be too full of ſtraw; mix it well together, and throw it into a heap, adding ſome ſea-coal aſhes to it; after it has lain thus a few days, it ſhould be carefully turned over, and again laid in a heap, repeat this a third time, which will rot the ſtraw and mix it thoroughly with the dung. The place where the bed is made ſhould be ſheltered with reed-hedges, and the ground ſhould be dry. Here make a trench of a proper length and breadth, and a foot deep at leaſt, into which the dung ſhould be thrown, and carefully ſtirred up and mixed, till no part is left unſeparated; very often for want of this care a bed ſettles unequally.

There ſhould alſo be great care taken to beat the dung down cloſe in every part of the bed alike. When the bed is finiſhed, the frames and glaſſes ſhould be put upon it to keep out the rain, but there ſhould be no earth laid upon the dung till two or three days after, that the ſteam of the dung may have time to evaporate. If there ſhould be any danger of the bed burning, it will be proper to lay ſome ſhort old dung, or ſome neat's dung, over the top of the hot-dung, about two inches thick, which will keep down the heat. The uſual quantity of dung allowed for making the beds at this ſeaſon, is one good cart load to each light.

In about three days the bed will be in a proper temperature of heat to receive the plants; at which time the dung ſhould be covered over with dry earth about two inches, and in the middle of the bed it ſhould be a foot thick. This ſhould be laid upon the dung two or three days before the plants are removed into the bed, that the earth may be properly warmed. Then the plants ſhould be carefully ſhaken out of the pots, preſerving all the earth to their roots, and placed on the top of the earth in the middle of the bed. Two of theſe plants will be ſufficient for each light, and theſe ſhould be placed at about ſeven or eight inches aſunder, but not all their roots together, as is too often practiſed. When the plants are thus ſituated in the bed, the earth which was laid a foot thick in the middle of it, ſhould be drawn up round the ball which remained to the roots of the plants, into which they will ſoon ſtrike. For the earthing of theſe beds, there ſhould always be a quantity of good earth laid under cover, to keep it dry, for if it is taken up wet it will chill the beds, and alſo occaſion great damps in them; therefore it is quite neceſſary to have a ſufficient quantity of earth prepared long before it is uſed.

When the plants are ſettled they muſt have proper air and water, according to the weather, being careful, when it is cold, not to admit too much of the former, nor give too much of the latter: the glaſſes ſhould alſo be well covered with mats every night, to keep up the warmth of the bed, and ſome freſh earth ſhould be laid upon it at different times, which ſhould be put at ſome diſtance from the roots of the plants, till it is warmed, and then ſhould be drawn up round the heap of earth, in which the plants grow; this ſhould be raiſed to the full height of the former ball, that the roots of the plants may the more eaſily ſtrike into it; by this method of ſupplying the earth the whole ſurface of the bed will be covered a foot deep with it, which will be of great ſervice to the roots of the plants, for where the earth is very ſhallow, the leaves will always hang in the heat of the day, unleſs they are ſhaded, and the plants will require more water to keep them alive, than is proper to allow them. By thus gradually applying the earth, it will be freſh: and much better for the roots of the plants than that which has been long upon the bed, and has been too much moiſtened by the ſteam ariſing from the dung.

If the heat of the bed ſhould decline, there ſhould be ſome freſh hot dung laid round the ſides of it to renew the heat; for if that ſhould fail at the time the fruit appears, they will fall off and periſh, therefore this ſhould be carefully regarded; and when the plants have put out ſide branches, commonly called runners, they ſhould be properly placed, and pegged down with ſmall forked ſticks, to prevent their riſing up to the glaſſes, and alſo from croſſing, and entangling with each other. By thus properly directing them at firſt, there will be no neceſſity of twiſting and tumbling the plants afterwards, which is always hurtful to them.

When the earth of the bed is laid the full thickneſs, it will be neceſſary to raiſe the frames, otherwiſe the glaſſes will be too cloſe to the plants; but when this is done, there muſt be care taken to ſtop the earth very cloſe round the ſides of the frame, to prevent the cold air from entering under them. The watering of the plants, and admitting freſh air to them muſt be diligently attended to, otherwiſe they will ſoon be deſtroyed, for a little neglect either of not admitting air, or letting in too much; by over watering, or by ſtarving the plants, will very ſoon deſtroy them paſt recovery.

When the fruit of the Cucumbers are fairly ſet, if the bed is of a proper temperature of heat, they will ſoon ſwell and become fit for uſe; after which all that is neceſſary to be obſerved, is to water the plants properly, which ſhould be done by ſprinkling the water all over the bed, for the roots of the plants will extend themſelves to the ſides of the bed; therefore thoſe who are inclined to continue theſe plants as long as poſſible in vigour, ſhould add a ſufficient thickneſs of dung and earth all round the ſides of the bed, ſo as to enlarge them to near double their firſt width; this will ſupply nouriſhment to the roots of the plants, whereby they may be continued fruitful great part of the ſummer; whereas, when this is not practiſed. the roots of the plants when they have reached the ſides of the bed, are dried by the wind and ſun, ſo that the plants languiſh and decay long before their time.

In gardens where there is not the convenience of a ſtove, the ſeeds, for early Cucumbers, ſhould be ſown in ſmall halfpenny pots, and theſe placed in a well prepared hot-bed, as they can then eaſily be removed from one bed to another, if the heat ſhould decline; or on the contrary, if the heat ſhould be too great, the pots may be raiſed up, which will prevent the ſeed or young plants from being injured thereby. When the plants are come up, there ſhould be a freſh hot-bed prepared, with a ſufficient number of halfpenny pots plunged therein, ready to receive them, into which they muſt be planted in the ſame manner as before directed; and the after management of the plants muſt be nearly the ſame; but as the ſteam of the hot-bed frequently occaſions great damps, there muſt be care taken to turn and wipe the glaſſes frequently, to prevent the condenſed moiſture falling on the plants, which is very deſtructive to them. Air muſt be admitted at all proper times, when the weather is mild; and the bed muſt always be kept in a proper temperature of heat; for the want of fire muſt be ſupplied by the heat of the dung. They may afterwards be treated in the manner already directed.

The ſeeds for the ſecond crop ſhould be ſown about the middle of March, or a little later if the ſpring is backward, either under a bell-glaſs, or in the upperſide of your early hot-bed, and when the plants are come up, they ſhould be tranſplanted into another moderate hot-bed, at the diſtance of about two inches aſunder; here they muſt be covered with bell or hand-glaſſes, ſet quite cloſe to each other, and they ſhould be ſhaded and ſparingly watered, until they have taken root; they ſhould alſo be aired as much as the weather will permit, by raiſing up the glaſſes on the oppoſite ſide from the wind, in order to ſtrengthen them; and when they have begun to put out their rough leaves, they muſt be again tranſplanted on the ridges where they are to remain.

Theſe ridges are made with new horſe-dung, in the ſame manner as before directed for the hot-bed, excepting that they are neither ſo thick nor ſo wide. About two feet four inches will be ſufficient for the trenches in which they are made; but their length may be whatever is moſt convenient, according to the number of plants intended for them. The trenches for theſe ridges ſhould be about ten inches deep in dry ground; but if the ſoil is wet, very little earth need be dug away.

About one cart load of dung will make a ridge long enough for five or ſix holes of Cucumbers, at the diſtance of about three feet and a half from each other; this ridge of dung being well beaten down and levelled at top, ſhould be covered with earth about four inches deep, and the ſame thickneſs of it ſhould be laid over the ſides. Hillocks of mould ſhould then be raiſed up in the middle of the ridge, at every diſtance in which the plants are to be ſet; and after theſe have been cloſely covered with the glaſſes during twenty-four hours, in order to warm the earth, and thereby fit it for the reception of the plants, they ſhould be ſtirred up with the hand, ſo as to make a little hollow in the middle of each, in the form of a baſon; four plants ſhould then be ſet as far as can be from each other, in each of theſe hollows, where they muſt again be watered and ſhaded till they have taken freſh root; after which the air muſt be admitted, by raiſing the glaſſes as before directed, in proportion to the warmth of the weather: but they ſhould be raiſed thus only in the middle of the day, till the plants begin to fill them; for after that, they ſhould be propped up with a forked ſtick on the ſouth ſide, to a height proportioned to the increaſe of the plants, which muſt be carefully preſerved from being ſcorched by the ſun. This will alſo harden and prepare them for the open air, to which they ſhould not, however, be expoſed too ſoon, becauſe we frequently have morning froſts in May, which they would not be able to reſiſt. Rather than run any hazard of this kind, the glaſſes ſhould be kept over them as long as poſſible without damaging the plants; and this may be for a conſiderable time, if the glaſſes are raiſed all round, by ſetting them on three bricks.

About the end of May, when the weather begins to be ſettled and warm, and rather in a cloudy day which ſeems to promiſe rain, than in a very dry and ſunny one, the plants ſhould be gently turned down from out of the glaſſes; and theſe ſhould then be ſupported over them at the height of four or five inches from the ground, by three forked ſticks, which will hold them up very ſecurely, and prevent their bruiſing the ſhoots of the plants underneath: for it is beſt not to remove the glaſs entirely before the latter end of June or the beginning of July, becauſe they will preſerve a moiſture about their roots much longer than if they were quite expoſed to the open air. The plants thus turned down will have made a conſiderable progreſs by the end of three weeks, eſpecially if the weather has been favourable; and then it is that the ſpaces of ground between the ridges, or along the ſides of the ridge if there be but one, ſhould be dug up, and added to the bed, or beds, that the roots of the plants may be enabled to ſtrike into it; for they will extend themſelves a great way (ſome ſay as far as the vines,) if they are not cramped. The runners of the vines ſhould be laid in exact order, without tumbling them too much, or breaking their leaves. Some pin them down gently with little wooden hooks, to prevent their being blown about by the wind. After this, they will require no farther care, except keeping them clear from weeds, and watering them when neceſſary, that is to ſay, when their greater leaves drop and hang down to the ground. But here it is to be obſerved, that though pretty frequent watering of them increaſes their fruitfulneſs, they are beſt taſted, and wholeſomeſt, when they have had but little water; and, though they ſhould be watered ſometimes in dry weather, they ſhould be carefully defended from rain when it is cold. The ridges thus managed will yield large quantities of fruit, from June till the latter end of Auguſt. Mr. Mortimer recommends nipping of the top ſhoots of Cucumber plants after they have put out three or four joints, as a means of making them knit the ſooner for fruit.

It is from Cucumbers planted on ridges, like the above, that moſt of the gardeners about London ſave their ſeeds. To this end, they leave a number of the earlieſt and fineſt fruit upon the vines, until their ſeeds are perfectly ripe; and then, when the outer cover begins to decay, they cut them open, and ſcrape out their ſeeds, with the pulp, into a tub, which they cover over with a board, to keep out all filth. They let theſe ſeeds and pulp remain thus for eight or ten days, only ſtirring them well with a ſtick, to the bottom, every day, in order to rot the pulp, and make it ſeparate the more eaſily from the ſeeds. They then pour water into the tub, and ſtir the whole well about, till there ariſes a ſcum, after which they let the ſeeds ſettle to the bottom, and pour off the water. This they repeat two or three times, till the ſeeds are perfectly cleared from the pulp. They then ſpread them upon a mat expoſed to the ſun and open air for three or four days, till they are quite dry, and after this they put them into bags, and hang them in a dry place, where vermin cannot come to them. They will keep good for ſeveral years, but are thought to produce the leaſt luxuriant, and therefore moſt fruitful plants, when they are three or four years old.

To avoid the trouble of making beds, or ridges, of dung on purpoſe for them, as above deſcribed (which is undoubtedly the ſureſt way to have early fruit), many people, who are leſs ſolicitous about the earlineſs, or even the great plentifulneſs of theſe crops, than the trading gardeners about London are obliged to be, only dig holes of the ſize of a buſhel, fill them with warm ſtable-dung, then ſet in the middle of them four or five Cucumber-plants, with as much mould as poſſible about their roots, and afterwards earth them up in the form of a baſon, to render the watering of them more effectual. They ſhade them till they have taken root, and cover them for a while with bell or hand-glaſſes, if they have any; or they even truſt them at once to the open air.

If the plants thrive, three of them will be ſufficient in a hole; and then the reſt of them may be plucked up, or tranſplanted elſewhere. Some even raiſe them from their ſeeds planted in holes of this kind, without any previous hot-bed, and they do very well, if the ſeaſon be at all favourable.

The time for ſowing the latter crop of Cucumbers, commonly called picklers, is the beginning of June. The London gardeners generally ſet theſe between their wideſt rows of Cauliflowers, which are four feet and a half aſunder. To this end, they dig ſquare holes about three feet and an half from each other, breaking the earth well, and hollowing the ſurface of each hole, with their hands, till it is like a baſon. They then plant eight or nine ſeeds in the middle of each of theſe ſpots, and cover them with earth to the thickneſs of about half an inch. If the weather is very dry, they water them gently at the end of a day or two. In five or ſix days the plants will appear above ground; and particular care muſt be taken then to defend them from birds, eſpecially ſparrows, which will otherwiſe ſoon pinch them off, and thereby fruſtrate all expectations of a crop: but this danger will be over in little more than a week; for the ſparrows will not meddle with them after they have expanded their ſeed leaves. Care muſt alſo be taken to continue to water them gently, from time to time, according as the ſeaſon is more or leſs dry; and when they begin to ſhew their third leaf, which is the firſt of their rough ones, all the weakeſt plants ſhould be pulled up, leaving in each hole only four of the moſt promiſing and beſt ſituated. The ground about theſe ſhould then be well ſtirred with a ſmall hoe, to deſtroy the weeds, and earth up the plants, around the ſtems of which the mould ſhould afterwards be gently preſſed down by hand, the better to ſeparate them from each other as much as can be without hurting them. This being done, they are watered a little to ſettle the earth about them, and at ſuch other times as the dryneſs of the weather may render neceſſary: but, above all, they muſt be kept clear from weeds. When the Cauliflowers are quite removed, the whole ground ſhould be thoroughly hoed and cleaned, freſh earth ſhould be laid up around the plants, ſo as to deepen the hollows in which they ſtand, that they may the better contain water when it is given them, and their vines ſhould be ſpread out carefully in the order they are to run, in ſuch manner that they may not croſs or be entangled with one another. A little earth ſhould then be laid, and gently preſſed down, between the plants, the better to ſeparate them every way, and a gentle watering now, and as often afterwards as the ſeaſon ſhall require, will forward their growth. With this management, theſe plants will begin to yield young Cucumbers, fit for pickling, about the latter end of July, or early in Auguſt.

About fifty or ſixty of theſe holes will be neceſſary for a middling family; becauſe a ſmaller number of them will not afford fruit enough at one gathering to requite the trouble and expence of pickling, and they never are ſo good if they are gathered long before they are put into the vinegar. Fifty holes will ſeldom furniſh more than two hundred Cucumbers fit to gather at a time; and this may be repeated twice a week as long as the ſeaſon laſts, which generally is five weeks. What are not wanted for pickling, may be left to grow till they become fit to eat.

M. de Chateauvieux has raiſed excellent melons, which are a much more tender fruit than Cucumbers, in beds of common earth, in the open fields, merely by keeping the ground in fine order by a judicious uſe of the horſe-hoe, without the help of either dung, hot-bed, or glaſſes over them, and they were, in all reſpects, preferable to any in his garden. This ſurely merits the attention of all kitchen gardeners, and ſingularly of thoſe near London, where land and labour bear extraordinary prices.

A correſpondent of the editors of the Muſeum Ruſticum has given us the following new method of raiſing Cucumbers, without the help of forcing frames, though the fruit are much finer than any raiſed by the other methods yet in uſe. "I procured, ſays he, ſome of the beſt ſeed of the common prickly Cucumbers I could get; and from this ſeed, in the ſpring of the year 1750, I raiſed ſome plants on a moderate hot-bed, not hurrying them too much in their growth.

"In May, when the danger of the froſt was almoſt over, I familiarized the plants by degrees to the air, and towards the latter end of the month planted them in the open ground againſt a ſouth wall.

"In this ſituation they throve apace, and as faſt as they put forth their runners, I nailed them gently up againſt the wall. They did not ſend forth many bloſſoms till they had run a conſiderable height, at leaſt five feet; after which the fruit began to ſhew itſelf.

"I did not give my plants too much water, and this I have ſince found a neceſſary precaution.

"The fruit increaſed in ſize daily, was of a fine green colour, and differed greatly from that of ſome other plants raiſed from the ſame ſeed, but planted in the common way; the runners being ſuffered to trail on the ground.

"When I gathered my firſt Cucumber, I was exceedingly delighted with its appearance. It was long, thin in proportion to its length, of a beautiful green, not too deep, with a whitiſh ſummit.

"When I cut it I found the fleſh thick and firm, but few ſeeds, and thoſe very ſmall, and its flavour extremely delicious.

"Deſirous of knowing whether the plant might not be improved by ſowing the ſeeds of fruit raiſed in this manner, I pitched upon ſome of the fineſt Cucumbers, not at too great a diſtance from the roots, and left them on the vine to perfect their ſeed.

"In this manner I have raiſed Cucumbers for my own uſe ever ſince, and have the ſatisfaction to find, that inſtead of degenerating, they have improved ſurpriſingly.

"My neighbours in the country are exceedingly glad when I have any ſeed to ſpare for them, and always find their Cucumbers that year much better for uſing it, though they do not grow ſo large as mine, neither have they ſo delicious a flavour, unleſs nailed up againſt a wall.

"I am very ſenſible that this method cannot, with any degree of convenience, be brought into general practice; yet, in every garden, a few plants may be ſo trained to prevent the ſeed from degenerating; eſpecially as one or two plants raiſed in this manner would ſupply a ſufficient quantity of ſeed for a large garden.

"I muſt own, that in my method the plants do not bear ſo great a number of Cucumbers as in the common way; but then they are, without compariſon, larger, and of an exquiſite flavour." *Muſeum Ruſticum, vol.* I. *page* 131.

Wild CUCUMBER, *Elaterium*, a ſpecies of the Momordica, or Male Balſam Apple.

This plant is alſo called Spurting Cucumber, from its caſting out its ſeeds, together with the viſcid juice in which they are lodged, with a violent force, if touched when ripe, and from hence it has ſometimes the appellation of *touch me not.* This plant grows naturally in ſome of the warm parts of Europe, but it is cultivated in our gardens for the fruit, which is uſed in medicine. It has a large fleſhy root, from which come forth every ſpring, ſeveral thick, rough, trailing ſtalks, which divide into many branches, and extend every way two or three feet; theſe are garniſhed with thick, rough, and almoſt heart-ſhaped leaves, of a grey colour, ſtanding upon long foot-ſtalks. The flower comes out from the wings of the ſtalk; and the fruit grows of an oval form, about an inch and a half long, of a grey colour, like the leaves, and covered over with ſhort prickles; theſe do not change their colour when ripe, like moſt of the other fruit of this claſs; but if attempted to be gathered, they quit their foot-ſtalk, and caſt out their ſeeds and juice with great violence; therefore, when the fruit is deſigned for uſe, it ſhould always be gathered before it is ripe, otherwiſe the juice, which is the moſt valuable part, will be loſt; for the Elaterium, which is made from the clear juice of the fruit, is much whiter, and will retain its virtues much longer than that which is extracted by preſſure.

Culture of the Wild CUCUMBER.

If this fruit is permitted to ſtand till ripe, it will burſt, and the ſeeds be ſcattered round to a conſiderable diſtance, when there will be plenty of the plants produced the next ſpring. Or if the ſeeds are ſown upon a bed of light earth, the plants will come up in about a month after, and may be tranſplanted to an open ſpot of ground, in rows at three or four feet diſtance, and almoſt as far aſunder in the rows. If theſe are tranſplanted while young, there will be little hazard of their growing; and after they have taken new root, they will require no farther care, but to be kept clean from weeds.

If the ground is dry in which theſe are planted, the roots will continue three or four years, unleſs the winter ſhould prove very ſevere, which will ſometimes kill them.

CUDWEED, GOLDY-LOCKS, or ETERNAL-FLOWER, *Gnaphalium*, a genus of plants, ranged by Linnæus among the *ſyngeneſia polygamia ſuperflua*, and of which he diſtinguiſhes no leſs than thirty-ſix ſpecies, too great a number for particular deſcription in this work. The moſt beautiful among them is the Golden Cudweed; the root is long, and furniſhed with innumerable fibres; the ſtalk is thick, round, firm, white, and woolly, and riſes to two feet in height, ſpreading every way innumerable branches, which ſtand wide, looſe, and ſcattered; the leaves are large, oblong, and of the ſame woolly aſpect with the ſtalk; they ſurround it at the baſe, are broadeſt toward the middle, waved at the edges, and obtuſe; the flowers crown the extremities of all the branches, and on the principal of them form large and handſome heads. They are of a very delicate yellow, bright and ſhining, and have the additional value of being very laſting.

Culture of the Golden CUDWEED.

This plant is a native of Africa, and thrives there in light, deep, and mellow ſoils, where there is ſome moiſture. With us it requires the ſame light deep mould, and will live through winter in the well-ſheltered borders of the garden.

Mix a compoſt of equal parts of pond-mud and garden-mould, and dig this in two ſpades depth in ſome ſmall ſpot, which has a ſheltered ſituation.

On this ſow ſome of the ſeeds which have been well-ripened and well hardened; ſuch a ſpot is preferable to the nurſery for ſowing the ſeeds in, becauſe the ſucceſs of the plant depends upon its not being removed.

When the young plants appear they muſt be thinned to a foot diſtance, and from this time weeded and watered. April is the beſt time for putting the ſeeds into the ground, and they will flower late the ſame ſummer, but they will not come to their full perfection till the ſucceeding year. After this there ſhould be a freſh ſowing every ſeaſon; for the plants are never ſo beautiful as the firſt time they come into full flower.

Baſtard CUDWEED, *Micropus*, a genus of plants, claſſed by Linnæus among the *ſyngeneſia polygamia neceſſaria*, and of which there is only one ſpecies.

This is an annual plant, which grows naturally in Portugal, near the ſea. It is eſteemed in our gardens for the beauty of its ſilvery leaves. The root ſends out ſeveral trailing ſtalks, about ſix or eight inches long, which are decorated with ſmall, oval, ſilvery leaves, whoſe baſe embrace the ſtalk. The flowers come out from the wings of the ſtalks in ſmall cluſters; they are white and very ſmall. It flowers in June and July, and the ſeeds ripen in autumn.

Culture of the Baſtard CUDWEED.

If the ſeeds of this plant are ſown in autumn, or are permitted to ſcatter, the plants will come up in the ſpring, and will require no other care but to be kept clean from weeds, and thinned where they grow too cloſe. When the ſeeds of this plant are ſown in ſpring, they ſeldom ripen the firſt year.

CULM, the ſtalk of graſſes and gramineous plants.

CUMIN, *Cuminum*, a genus of plants, of which there is but one ſpecies.

This plant is annual, periſhing ſoon after the ſeeds are ripe; it ſeldom riſes more than nine or ten inches high in Malta, and other warm countries where it is native; but here it never exceeds four inches. Theſe plants flower extremely well in England, but ſeldom produce ſeeds. The leaves are divided into long narrow ſegments, they are of a deep green, and generally turn back at their extremity. The flowers grow in ſmall umbels at the top of the ſtalks; they are compoſed of five unequal petals, which are of a pale blueiſh colour, and are ſucceeded by long-channelled aromatick ſeeds.

Culture of the CUMIN.

Sow the ſeeds in ſmall pots, and plunge them into a very moderate hot-bed. When the plants appear, inure them by degrees to the open air; then turn them out of the pots, preſerving the ball of earth to their roots, and plant them in a warm border of good earth; by this method the plants will flower extremely well, and in very warm ſeaſons may be brought to perfect their ſeeds.

CUNONIA, a genus of plants, for which there is no Engliſh name, and only one ſpecies.

This plant is a native of the Cape of Good Hope. It has a compreſſed bulbous root, covered with a brown ſkin; from this riſe ſeveral narrow ſword-ſhaped leaves, about nine inches long, and a quarter of an inch broad, terminating in acute points; their colour is a fine ſea-green. In ſpring the ſtalk riſes from between the leaves, which is round, ſtrong, and jointed; at each joint is ſituated a ſingle leaf, which almoſt embraces the ſtalk, which riſes near a foot and a half high, and is generally curved two oppoſite ways. The upper part of the ſtalk is terminated by a looſe ſpike of flowers, of a beautiful ſoft ſcarlet colour; theſe make a fine appearance about the latter end of April, or beginning of May.

Culture of the CUNONIA.

This plant is eaſily propagated by off-ſets, which it ſends out in great plenty; or by ſowing the ſeeds; theſe ſhould be ſown in pots, about the middle of Auguſt, and placed in a ſituation where they may enjoy the morning ſun. In September the pots may be removed to a warmer ſituation, and in October they muſt be placed under a frame, where they may be protected from froſt and hard rains, but in mild weather enjoy the free air. The plants will appear in October, and continue growing all the winter. In June their leaves will decay; then they may be taken up, and planted in halfpenny pots, and ſheltered all the winter under a hot-bed frame, admitting the air at all times when the weather will permit; and the third year they will flower.

CURRANT-TREE, *Ribes*. Of this genus there are four ſpecies. 1. Currant, without thorns, ſmooth hanging bunches, and plain flowers; common Currant. 2. Smooth Currant, with erect bunches, and bractæ longer than the flower, called Sweet Alpine Currant. 3. Currant, without ſpines, having hairy branches, and oblong flowers; Black Currant. 4. Currant, with unarmed ſmooth branches, and bell-ſhaped flowers.

The firſt ſort grows naturally in the northern parts of Europe, but by long culture has been greatly improved, ſo that at preſent there are the following varieties in our gardens. The common Currant, with ſmall red fruit; the ſame with white fruit, and another with pale fruit, commonly called the Champaign Currant; but ſince the two ſorts of Dutch Currants have been introduced, the old red and white Currants have been almoſt baniſhed.

The ſecond ſort is kept in a few gardens for the ſake of variety, but the fruit being very ſmall, and of an indifferent flavour; it is not much cultivated.

The third ſort grows naturally in Helvetia, Sweden, and other northern countries. The fruit of this plant having a ſtrong diſagreeable flavour, is never admitted to table; but being made a jelly, is an excellent remedy for a ſore throat, and has often been given with ſucceſs in quinſies.

The fourth ſort grows naturally in Penſylvania, this is not, as many have ſuppoſed, the ſame with the common black Currant. The plants do not produce much fruit, nor is that ſo good as to merit cultivation, ſo that it is only kept by way of curioſity.

Culture of the CURRANT-TREE.

The ſeveral kinds of Currants are very eaſily propagated, by planting their cuttings any time from September to March, upon a ſpot of freſh earth, which in the ſpring muſt be carefully kept clean from weeds; and in dry weather, the young plants muſt be frequently watered. When they have ſtood about two years in this place, they will be fit to tranſplant to the places where they are to remain, and this ſhould be done when the leaves are juſt decayed, that they may have time to take root before winter. If they are for ſtandards, they ſhould be planted in rows of ten feet diſtance from one another, and four feet aſunder in the rows; but the beſt method is to train them in eſpaliers, in which ſtate they take up much leſs room and their fruit will be far ſuperior. In eſpaliers they ſhould be placed at ten or twelve feet diſtance, and all their branches trained horizontally. They are to be allowed the ſame diſtance when ſet againſt walls or pales.

Thoſe ſet againſt a ſouth wall ripen their fruit near three weeks ſooner than thoſe in the open air; and thoſe which are planted againſt a north wall will be proportionably later; ſo that by this method the fruit may be continued a long time in perfection; eſpecially if thoſe againſt the north pales are matted in the heat of the day.

Theſe plants produce their fruit upon the former year's wood, and alſo upon ſmall ſnags which come out of the old wood; ſo that in pruning them, theſe ſnags ſhould be preſerved, and the young ſhoots ſhortened in proportion to their ſtrength.

Currant-trees will thrive in any ſoil or ſituation, but the fruit is always beſt when they are planted in a dry ſoil, and an open ſpot of ground.

CUSPIDATED *Leaf*, &c. Such as is pointed like a ſpear.

CUSTARD *Apple*. See the article *Cuſtard* APPLE.

CYCLAMEN, *Sow-bread*, a genus of plants ranged by Linnæus among the *pentandria monogynia*, and of which there are only two ſpecies. 1. Cyclamen with flowers reflected back, or the European Cyclamen. 2. Cyclamen with the limb or extremity of the corolla nodding, or the Indian Cyclamen. From theſe two ſpecies, culture has produced a great number of varieties. Among which are the Violet Cyclamen, the round leaved Cyclamen, and the Perſian Cyclamen.

Violet CYCLAMEN. The root of this is very large, and black on the outſide. The leaves are numerous and not inelegant; they are large, oblong, angulated in various manners, and waved or indented at the edge. Their colour on the upper ſide is a deep green, with ſome ſpots of white; on the under part they are purple or crimſon: they ſtand on long, thick, but not ſtrong reddiſh footſtalks. The flowers riſe ſingly on long naked footſtalks; they are large, and of a beautiful violet blue.

Culture of this CYCLAMEN.

It is very hardy, and will bear all ſeaſons in our open borders. The true method of propagating it is by ſeed: this ſhould be ſaved from the fineſt flowers, and ſowed on a piece of ground in the nurſery, open to the morning ſun. Though in this method the progreſs of the plant to perfection is very ſlow, yet it is the only one by which beautiful flowers can be obtained. The fineſt are to be preſerved for the diſtinct beds, the reſt diſperſed in leſs conſpicuous places, and once a year they ſhould be all taken up and planted in new mould.

Round-leaved CYCLAMEN. This is a great ornament to our gardens at a ſeaſon when few flowers can be had to grace the open ground. The root is large and tuberous. It has no common ſtalk for leaves and flowers, as in the generality of plants; but each leaf and each flower riſes directly from the root upon its proper footſtalk. Thoſe of the leaves are purpliſh, long, weak, and ſlender. The leaf itſelf approaches to round; but it is deeply divided for the reception of the ſtalk, which adheres in the common way to an indented edge, not as in ſome round leaves, to the centre. Their colour on the upper ſide is a fine deep green ſpotted with white, and on the under ſide a deep red, between purple and crimſon. The veins are large and conſpicuous; and they are throughout of a pale crimſon. The footſtalks of the flowers exceed thoſe of the leaves in length, and are uſually more erect. They are as ſlender as the others; and their colour, which is red at the bottom, becomes toward the top and whitiſh. The flowers ſtand ſingly, one on each of theſe ſtalks; and their colour is a deep purpliſh red.

Culture of this CYCLAMEN.

In the beginning of June the ſeeds muſt be collected from ſome of the plants, and laid on a papered ſhelf to dry. In a few days they will burſt, and the ſeeds will fall out, if any ſhould remain they muſt be ſhaken out; and ſpread upon the ſame ſhelf to harden. The latter end of Auguſt a border muſt be prepared for them in the following manner. Dig out the mould two feet deep, and throw in large gravel enough to cover the bottom two or three inches; then put in the mould again; level the ſurface, and ſcatter the ſeeds over it, ſo that they may lie at about an inch diſtance. Sift over them a quarter of an inch of the ſame mould, and throw on ſome pieces of furze buſhes.

If the ſucceeding time ſhould be dry, let the bed have now and then a little water. After this the plants will riſe without any farther care except that of keeping them clear from weeds. They ſhould be thinned where they riſe too cloſe; and ſuch as are taken up for this purpoſe, ſhould be planted in more vacant ſpots. They muſt remain in this bed till the time of their flowering, which will not be till about the fourth year. Then the beſt are to be marked, for there will riſe many varieties; and when the leaves which ſucceed their flowers are faded, which will be toward the latter end of June following, they muſt be taken up, and planted out in different parts of the garden, leaving as many as can conveniently ſtand in the original bed. Their diſtance in this ſhould be about two feet; for, in a number of years, their roots will grow to a very large ſize. After this they require no particular care. They bear all ſeaſons, and flower in more profuſion every ſucceeding year, as their roots encreaſe in bigneſs.

Perſian CYCLAMEN. This plant is well worthy the culture it demands. The root is tuberous, and the leaves ſcatter themſelves wildly from it, on long purple footſtalks, ſome erect, ſome drooping, and others lying on the ground. Their form is oval, with two, and ſometimes more indentings, which divide the broad baſe from the ſmaller extremity, and part the whole into three rounded lobes. Their colour is a fine ſtrong green, a little tinged with blue. The ribs are of a fainter colour than the footſtalk; and the ſame colour glows under the whole leaf. Among theſe appear the ſtalks of the flowers; theſe are of a paler red than thoſe which bear the leaves; and more than twice their length; they riſe naked from the root, and each ſupports one flower of great beauty; it is large and hangs drooping. The general colour is white; ſometimes tinged with a fleſhy purple, and always ornamented at the baſe, with a circle or ring, of a deep purple, rich, and velvety.

Culture of this CYCLAMEN.

This plant is raiſed from ſeeds, and the beſt method is to ſow them in a box of rough boards made four feet long, three feet broad, and eight inches deep. Mix up ſome paſture mould with one third earth from under a wood-pile, and one ſixth rotted cow-dung. Blend theſe well together, throw it in a heap, and ſometimes turn it. Save the ſeeds from ſome well growing plant, lay them on a papered ſhelf to harden, and then tye them up in bags till September, at which time the box muſt be filled within an inch of the rim with the compoſt: ſcatter on the ſeeds, and ſift over them a quarter of an inch of the ſame mould. Set the box in a place where it will have the full ſun all the winter; and pick off any moſs or young weeds that appear.

In ſpring the ſurface will be covered with young plants. Let the box then be removed into a ſhady place, where the ſun comes only two hours in a morning. In April, if the plants crowd each other a few muſt be pulled up. At times give them gentle waterings; and in this manner nurſe them till they are fit for tranſplanting. Againſt this time make ſome freſh compoſt of the ſame ingredients as the firſt, and with it fill as many pots as you intend to preſerve plants. Carefully take up the fineſt of them, and plant one in each pot. The ſeaſon for this is in ſummer, when the leaves are decayed. Set the pots in a ſhady ſituation till the plants begin to ſhoot again: then they muſt be removed to a warmer part; and at the approach of autumn taken into the greenhouſe; here they will flower about December, and with due care will continue full of beauty till late in the ſpring. They ſhould always be watered ſparingly at times, and, unleſs ſeeds are wanted, the ſtalks ſhould be cut down when the flowers are faded, to promote a ſucceſſion of new bloom.

CYME, *Cyma*, a receptacle that runs into long faſtigiate peduncles, proceeding from the ſame univerſal centre, but with irregular partial ones.

Scarlet CYNOMORIUM. There is ſcarce a more ſingular or more beautiful plant than this. It is about eight inches high; and under different circumſtances of growth, it appears in various forms; but when the ſoil and ſituation favour its flowering, the whole aſſumes a tolerably regular and conſtant figure. The root is a light, roundiſh, and irregular lump, lodged at a ſmall diſtance below the ſurface: and, when it is imperfectly nouriſhed, the whole plant often lies upon, or in part under the mould, in ſeveral thick irregular pieces with large heads. From this root riſes the body of the plant, ſmall at the bottom, thicker upwards and at the extremity ſomewhat leſs again. At its firſt appearance the whole ſubſtance is covered with little ſcales, thick ſet by one another, and of an oval pointed form, ſharper toward the bottom of the plant, and thinner upwards. In this form it ſtands a conſiderable time a crimſon lump, ſhewing itſelf about three inches above the ſurface of the ground; but when it riſes to flowering, the growth from that to its full height is very quick. This lower part retains its delicate crimſon and thick ſcaly covering, but the reſt is of a fine ſcarlet, lightly covered with looſe and broader ſcales, uſually indented at the top: theſe retain ſomething of the crimſon tinct of the lower ſcales, while the naked ſubſtance between them is of this fine ſcarlet; and from this naked part from under the ſcales, and often without them, riſe the flowers covering the whole ſubſtance. Theſe are very ſmall, and of a pale fleſh colour.

Culture of the CYNOMORIUM.

The firſt article toward raiſing this plant, muſt be to get good ſeeds, and theſe muſt be obtained from the Levant. Let a compoſt be made of two parts meadow-earth, and one part large coarſe ſand; and wet it a little with brine. In ſpring fill a middle-ſized pot with this compoſt, and ſcatter ſome of the ſeeds on the ſurface; ſift a little more of the ſame mould over them, and place the pot in a bark-bed.

No particular care need, after this, be beſtowed upon them: they may take their chance among the other pots of ſtove-plants; and if they never flower, there will ſtill be great ſingularity and beauty in them, but if they do, there will be a certainty of continuing them; for their ſeeds will not fail to grow in the ſame place where they ripened.

CYPRESS-TREE, *Cupreſſus*, a genus of plants ranged by Linnæus among the *monoecia monodelphia*, and of which he reckons but three ſpecies. 1. Cypreſs with imbricated leaves and quadrangular branches, or the common Cypreſs-tree. 2. Cypreſs with leaves on two ſides the branches, commonly called deciduous Cypreſs. 3. Cypreſs with imbricated leaves, and branches ſtanding two ways.

The firſt ſpecies is a native of Crete. This tree is found in moſt of our old gardens; but at preſent is leſs regarded than it really deſerves. It adds a conſiderable beauty to wilderneſſes, and clumps of evergreens, and is alſo worthy cultivation on account of its wood, which is very valuable.

The ſecond ſpecies is a native of Virginia, Carolina, and other parts of North-America, where it riſes in watery places to the prodigious height of ſeventy feet, and upwards, and is ſeveral fathoms in circumference. The third ſpecies is alſo a native of North-America where it riſes to a conſiderable height, and affords an uſeful timber to the inhabitants for many purpoſes.

Culture of the CYPRESS.

All theſe ſpecies are propagated from ſeeds, which ſhould be ſown early in the ſpring on a bed of warm, dry, ſandy earth, which ſhould be levelled very ſmooth. If the weather proves warm and dry, it will be proper to water the bed, taking care not to waſh the ſeeds out of the ground. In about a month's time, the plants will appear above ground, when they ſhould be kept clear from weeds.

After remaining two years in this bed, they may be tranſplanted into a nurſery; the beſt ſeaſon for removing them is in April, on a cloudy day that ſeems to threaten rain; and in taking them out of the ſeed bed, the roots ſhould be preſerved entire, with a ball of earth to each plant. When they have been three or four years in the nurſery, they may be planted out where they are to remain; and if deſigned for timber, the diſtance of eighteen or twenty feet ſhould be allowed every way round them. They muſt be well watered at firſt to ſettle the earth to their roots, which ought to be frequently repeated, if the weather proves dry.

The firſt ſpecies ſeldom produces good ſeeds in this country; the cones ſhould therefore be brought over intire from the places where it is a native, and the ſeeds taken out juſt before they are ſown. The beſt method of getting the ſeeds out is to expoſe the cones to a gentle heat, which will make them open and emit their ſeeds.

Summer CYPRESS, or *Belvidere*, a ſpecies of the Gooſe-foot or wild Orach.

This is a moſt beautiful plant; it grows very cloſe and thick, and in as regular a pyramid as if cut by art. It has, at firſt, greatly the appearance of the Cypreſs-tree, but the leaves are of lively, and more elegant green.

Culture of the Summer CYPRESS.

The ſeeds ſhould be ſown in autumn; in ſpring, when the plants are come up, they ſhould be tranſplanted into pots of good earth, and well watered in dry weather: theſe plants make a handſome appearance, when placed among others to adorn court-yards, &c. till their ſeeds begin to ſwell and grow heavy, which weigh down and diſplace their branches; the pots ſhould then be removed into a retired part of the garden to perfect their ſeeds; which if permitted to fall upon the ground, will come up the next ſpring; and no farther trouble is required in the culture, than to tranſplant them where they are intended to grow.

CYTISUS, *Baſe-tree Trefoil*, a genus of plants ranged by Linnæus among the *diadelphia decandria*, and of which there are eleven ſpecies. 1. Cytiſus with ſingle pendulous bunches, and oval oblong leaves, commonly called Laburnum. 2. Cytiſus with ſingle erect bunches, and oval oblong leaves, or long ſpiked Cytiſus. 3. Cytiſus with erect bunches, the cup augmented by a triple bractæa, and ſeſſile floral leaves. 4. Cytiſus with erect ſpikes of flowers proceeding from the the ſides of the branches, ſpear-ſhaped, woolly leaves, and footſtalk of the middle one the longeſt. 5. Cytiſus with ſingle lateral footſtalks to the flowers, and hairy, trifid, obtuſe, ventricoſe, oblong cups. 6. Cytiſus with flowers collected in heads, and branches lying on the ground. 7. Cytiſus with lateral bunches of flowers, angular bunches, and wedge-ſhaped ſmall leaves. 8. Cytiſus with ſingle, ſpear-ſhaped, narrow leaves, and angular branches. 9. Cytiſus with lateral flowers, hairy leaves, and an upright, ſtriated ſtalk. 10. Cytiſus with ſeſſile flowers, hairy leaves, and an herbaceous ſtalk. 11. Cytiſus with pinnated leaves.

Broad-leaved, pendulous-flowered CYTISUS, or *Laburnum*. This plant is a native of Switzerland and many other parts of Europe; it riſes to the height of a moderate tree. The trunk is covered with a brown bark; the wood is white and firm; and the young ſhoots are ſlender and of a pale green. The branches are numerous; ſo that the tree naturally forms itſelf into a handſome head, and the leaves cloath it with a great deal of beauty. Theſe are placed in the trifoliate manner; and the footſtalk is long, ſlender, weak, and covered with a light ſoft down. Each of the three leaves is oblong, broad, rounded at the end, and undivided at the edges. Their colour on the upper ſide is a very beautiful freſh green, and on the under part greyiſh. The flowers are numerous and very handſome; a long ſeries of them hangs on a weak and drooping ſtalk; they are ſeparately large, and of a delicate yellow. Their common ſtalk is tender, downy, greyiſh, and with us five inches long, on this the flowers are placed irregularly, each upon its ſeparate ſhort footſtalk. The upper petal, which is larger than the others, has ſome blackneſs within, which gives a great elegance to the open flower.

Culture of this Cytisus.

This plant thrives beſt in a rich ſoil, and where, with moderate moiſture, there is moſt ſun. It muſt be raiſed from ſeeds, which grow freely in the open air of our climate; ſeeds ripened here will raiſe good trees: but when they can be obtained freſh from Italy, ſuch will be greatly preferable; they ſhould be kept dry till March, when the gardener muſt dig up a ſmall piece of rich ground in the ſeminary, and ſow them, but not too cloſe; ſift half an inch of good light mould over them, and ſcatter upon the ſurface a few pieces of furze-buſh.

In the beginning of April the young plants will appear, and the buſhes muſt then be taken off. A fortnight after this let them be weeded carefully by hand, and thinned where they crowd one another. After this weeding give them a gentle watering; and, unleſs rain ſhould render it unneceſſary, this muſt be repeated once in three or four days. All ſummer they ſhould be kept clear from weeds: and at the approach of autumn a reed-hedge muſt be placed for their defence againſt cold winds. In the beginning of the March following tranſplant them into another bed, at two feet diſtance, leaving as many ſeed-plants unremoved as will ſtand with the ſame ſpace between them in their original bed. They may now ſtand two, three, or four years, and then will be fit to remove into the garden, where they are to remain among the flowering ſhrubs.

Long-Spiked CYTISUS, or LABURNUM. Though all the ſpecies of this genus are an ornament to our gardens, this from its ſingular beauty claims the pre-eminence. The root is woody, blackiſh, ſpreading, and hung with a few ſtrong fibres. The ſtem is woody, and about an inch in diameter, five feet high, and naturally ſpreading into many branches; and if rightly trained, it makes a good head, and an elegant figure. The bark is brown, the young ſhoots are green, with a tinge of reddiſh: and toward the tops they have a ſilken down. The leaves ſtand three upon each foot-ſtalk, except that at the ſummits of the branches, near the ſpikes of flowers, there uſually are a few ſingle ones, ſlight, and imperfect, and with ſcarce any foot-ſtalks. The ſtalks of the others are tinged with brown, where they join the branch; the ſeparate leaves are of a figure approaching to oval, but too long for that name, and they have a ſtrong browniſh middle rib. Their colour is a deep duſky green upon the upper ſide, and they are hairy and pale underneath; the flowers are extremely conſpicuous and beautiful; when the ſhrub is well-managed, they terminate all the branches, and the whole head appears of gold; they are arranged in very long upright ſpikes, and their colour is the moſt glorious yellow that can be conceived; they are not ſmall in themſelves, and in the ſpike are very noble; they ſtand cloſe, crowding one another, and open in a long ſucceſſion.

Culture of this Cytisus.

The ſame directions which have been already given for the culture of theſe ſpecies, is proper for this alſo. The ſeeds ſhoot freely, and being a native of Europe, it bears our winters. It requires moderate waterings, and the ſoil freſh paſture-ground.

The third, fifth, ſixth, eighth, ninth, and tenth ſpecies may all be cultivated in the above manner.

The fourth, ſeventh, and eleventh ſpecies, are natives of the Indies, and too tender to bear the open air of our climate. They muſt therefore be raiſed from ſeeds ſown on a hot-bed, and, when the plants come up, they muſt be tranſplanted each into a ſeparate pot, and placed in the bark-bed of the ſtove, always allowing them a great ſhare of freſh air in warm weather. They muſt have but little water in winter, and may in other reſpects be treated in the manner of tender exotics from the ſame climate. If they have a proper heat, they will grow four or five feet high the firſt year, and the ſecond they generally produce their flowers and ſeeds.

Canary CYTISUS, a ſpecies of Broom. See the article Broom.

D.

DAFFODIL, *Narciſſus*. See the article Narcissus.

Lily DAFFODIL, *Amaryllis*. See Amaryllis.

Sea DAFFODIL, *Pancratium*, a genus of plants ranged by Linnæus among the *hexandria monogynia*, and of which there are ſeven ſpecies. 1. Sea Daffodil with one flower in a ſheath, and with reflexed petals. 2. Sea Daffodil with two flowers in a ſheath. 3. Sea Daffodil with many flowers in a ſheath, and ſpear-pointed leaves. 4. Sea Daffodil with many flowers in a ſheath, plain leaves, and tongue-ſhaped petals. 5. Sea Daffodil with many flowers in a ſheath, narrow leaves, and ſtamina the length of the nectarium. 6. Sea Daffodil with many flowers in a ſheath, ſword-ſhaped leaves, and ſtamina longer than the nectarium. 7. Sea Daffodil with many flowers in a ſheath, and oval, veined leaves.

The ſeveral ſpecies of this plant are perennial, and have bulbous roots. The firſt, ſecond, third, fifth, and ſeventh ſpecies are natives of the Indies. The fourth ſort grows naturally in the ſouth of France, and the ſixth is a native of Sicily.

Culture of the Sea Daffodil.

The firſt, ſecond, third, fifth, and ſeventh ſorts will not ſucceed in our climate, unleſs they are placed in a warm ſtove; they are propagated by off-ſets from the roots, and alſo by bulbs which ſucceed the flowers; they ſhould be planted in ſmall pots filled with light kitchen-garden earth, and plunged into the bark-bed of the ſtove, where they will ſoon put out roots and leaves, and, with proper management, will become blowing roots in one year.

The fourth ſort will thrive extremely well if the ſeeds are ſown in a warm border. When the plants come up they muſt be kept clean from weeds, and thinned where they grow too cloſe.

The ſixth ſort is propagated either by off-ſets from the roots or by ſeeds; the firſt is the moſt expeditious method, for the off ſets will flower very ſtrong the ſecond year, whereas thoſe which are raiſed from ſeeds ſeldom flower in leſs than five years. The roots of this ſhould not be removed oftener than every third year. The beſt time for tranſplanting them is about the beginning of October, ſoon after the leaves decay; they ſhould not be kept long out of the ground, and muſt have a light ſandy ſoil, and a ſheltered ſituation.

Plant the roots nine inches or a foot aſunder, and five inches deep in the ground. If they are propagated by ſeeds, they ſhould be ſown in pots filled with light earth, ſoon after they are ripe, and the pots placed under a hot-bed frame in winter, till they have obtained ſtrength, after which they will live through the winter in the full ground; but in very ſevere ſeaſons the ſurface of the ground ſhould be covered with tanners bark, ſea-coal aſhes, ſtraw, or peaſe-haulm to keep out the froſt.

DAISY, *Bellis*, a genus of plants ranged by Linnæus among the *ſyngeneſia polygamia ſuperflua*, and of which there are only two ſpecies. 1. Daiſy with a naked ſtalk, or the garden, or the common Daiſy. 2. Daiſy with leaves on the lower part of the ſtalk. From theſe two ſpecies many varieties have been raiſed, among which are, 1. The Childing or proliferous Daiſy. 2. The red and white garden Daiſy with double flowers. 3. The double variegated garden Daiſy. 4. The cockſcomb Daiſy, with red and white flowers, &c.

Childing or *Proliferous* DAISY. This flower is, by the gardeners, called the hen and chickens. The root ſends out many fibres; and the leaves, where they are moſt full, have the middle veins a little reddiſh; and are irregularly waved, or bluntly indented on the edges. The ſtalks are numerous, of a pale green, tinged with red at the bottom, ſometimes naked, and ſometimes decorated with a little filmy leaf. On the ſummit of each ſtalk ſtands one principal flower ſurrounded with five or ſix ſmall ones. The central flower is ſo large, the ſtalk uſually bends with it, its colour is red, more or leſs variegated with white, and the little flowers are paler.

Culture of the proliferous DAISY.

This, and all other ſorts of Daiſies propagated in our gardens, are increaſed by parting their roots. No compoſt is required for them, the common garden ſoil anſwering the purpoſe, much better than any mixture, but to preſerve them in full beauty, this ſhould be changed every year. About the middle of September, ſet ſome good roots, parted from a thriving ſtock, in an eaſt or weſt border, at about eight inches diſtance, and, if the ſeaſon be dry, give them a gentle watering, which is all the care they require. In ſpring they will flower.

The ſame attention muſt be paid to them every autumn, and they will from year to year improve, rather than decline.

Blue DAISY, *Globularia*, a genus of plants ranged by Linnæus among the *tetrandria monogynia*, and of which there are ſeven ſpecies. 1. Blue Daiſy with a ſhrubby ſtalk and ſpear-ſhaped entire leaves, ending in three points. 2. Blue Daiſy with a ſhrubby ſtalk, with the lower leaves, wedge-ſhaped, and blunt, and thoſe growing on the ſtalk ſpear-ſhaped. 3. Blue Daiſy with an herbaceous ſtalk, the lower leaves divided into three points, and thoſe growing on the ſtalk ſpear-ſhaped, or the common blue Daiſy. 4. Blue Daiſy with the lower leaves crenated, and prickly, and thoſe on the ſtalks entire, and ending in a point. 5. Blue Daiſy with a naked ſtalk, wedge-ſhaped leaves, ending in three points, with the middle ſegment the leaſt. 6. Blue Daiſy with a naked ſtalk, and entire ſpear-ſhaped leaves. 7. Blue Daiſy with a naked head, alternate ſeſſile heads to the ſtalks, and oval, ſpear-ſhaped, entire leaves.

The firſt and ſecond ſpecies are natives of France and Spain. The third grows naturally upon rocky ſandy places in moſt parts of Europe. The fourth is a native of Grenada, the fifth of Pannonia, Auſtria, Switzerland, and the Pyrenean mountains. The ſixth of the Pyrenean mountains and thoſe of Auſtria; and the ſeventh grows naturally in the Levant.

Culture of the Blue DAISY.

The firſt and ſecond ſpecies are propagated by cuttings which ſhould be planted in pots filled with light earth, and then placed in a very moderate hot-bed, obſerving to water and ſhade them till they have got freſh root; after which they may be taken out of the bed and inured to the open air by degrees. They muſt always be ſheltered from ſevere froſts.

The proper time for taking off the cuttings is in April, juſt before they begin to make new ſhoots. The third ſort is propagated by parting the roots in September, which is alſo the proper ſeaſon for tranſplanting them: they ſhould have a loamy ſoil, and a ſhady ſituation, and ſhould not be removed oftener than every other year.

The fourth, fifth, and ſixth ſpecies are hardy plants, and may be propagated in the manner directed for the third.

The ſeventh ſpecies is cultivated in the manner directed for the firſt and ſecond ſorts.

DALECHAMPIA, a genus of plants of which there is no Engliſh name and only one ſpecies.

This plant grows naturally in Jamaica. From the root compoſed of many fibres, riſe ſeveral weak twining ſtalks, which faſten themſelves to the neighbouring plants, and mount up a conſiderable height; they are garniſhed at each joint by one trifoliate leaf. The flowers are produced from the ſides of the ſtalks, three or four growing upon each footſtalk, theſe are of an herbaceous colour and very ſmall; they have each a double involucrum, made up of two orders of leaves, which are narrow, and armed with ſmall briſtly hairs, that ſting the hands of all who unwarily touch them.

Culture of the DALECHAMPIA.

This plant is propagated by ſeeds, which muſt be ſown early in the ſpring upon a hot-bed. When the plants are three inches high, they ſhould be carefully tranſplanted, each into a ſeparate ſmall pot, and plunged into a hot-bed of tanner's bark, being careful to ſkreen them from the ſun till they have taken new root, after which the freſh air ſhould be admitted to them freely, in warm weather. When the plants are grown big enough to fill theſe pots with their roots, they ſhould be removed into larger, and placed in the bark-bed of the ſtove; where they muſt be ſupported with ſtakes, or a trelis, round which they will twine, and riſe to the height of eight or ten feet.

Theſe plants muſt be kept conſtantly in the ſtove, for they are too tender to bear the open air of our climate, even in the ſummer ſeaſon; therefore they ſhould be placed near the back of the ſtove, where, in ſummer, they will flower, and in very warm ſeaſons perfect their ſeeds. Theſe plants do not continue longer than one year, ſo that young plants ſhould be raiſed annually to preſerve the kind.

DAPHNE, *Spurge Laurel*, or *Mezereon*, a genus of plants ranged by Linnæus among the *octandria monogynia*, and of which there are ten ſpecies. 1. Daphne with three flowers together ſitting cloſe to the ſtalk, and ſpear-ſhaped, deciduous leaves, commonly called Mezereon. 2. Daphne with flowers ſitting cloſe to the ſides of the branches, and oval nervous leaves, covered with ſilky hairs on both ſides. 3. Daphne with flowers in cluſters growing cloſe to the ſides of the branches, and ſpear-ſhaped blunt leaves, woolly on their under ſide. 4. Daphne with cluſters of flowers growing cloſe to the ſides of the branches, and ſpear-ſhaped blunt leaves, woolly on their under ſide. 5. Daphne with bunches of flowers procceeding from the ſides of the branches, and ſmooth, ſpear-ſhaped leaves, commonly called Laureola, or Spurge Laurel. 6. Daphne with bifforal flower ſtalks proceeding from the ſides of the branches, and ſpear-ſhaped, oval leaves. 7. Daphne with flowers upon footſtalks collected into the heads, and terminating the branches, and oblong, oval, ſmooth leaves, growing oppoſite one to another. 8. Daphne with cluſters of ſeſſile flowers terminating the branches, and ſpear-ſhaped naked leaves. 9. Daphne with a panicle of flowers terminating the branches, and narrow, ſpear-ſhaped pointed leaves. 10. Daphne with flowers upon footſtalks terminating the branches, and narrow, ſpreading, ſharp-pointed leaves, ſcattered thin upon the branches.

Theſe are ſhrubby plants. The firſt ſpecies grows naturally in the northern parts of Europe, and particularly in ſome places in Hampſhire in this country. It has been long cultivated in the nurſery gardens as a flowering ſhrub. There are two varieties of this ſort; one with a white flower which is ſucceeded by yellow berries, and the other with peach coloured flowers and red fruit. This ſhrub grows to the height of five or ſix feet, it flowers in February and March, and ſometimes ſo early as January.

The ſecond, third, and fourth ſorts are natives of the ſouthern parts of Europe.

The fifth ſpecies grows naturally in England, and ſome other countries of Europe. It is an evergreen ſhrub, and is proper to fill up the vacant ſpaces in plantations.

The ſixth ſpecies is a native of Pontus; the ſeventh of China; the eighth of Switzerland, and Hungary; the ninth of Spain, and Italy; and the tenth of Ethiopia.

Culture of the DAPHNE.

The firſt and eighth ſpecies are propagated by ſeeds which ſhould be ſown on a border expoſed to the eaſt, ſoon after the berries are ripe. When the plants come up they will require no other care than being kept clean from weeds: they may continue in the ſeed-bed for two ſummers, but muſt be thinned where they grow too cloſe; then at Michaelmas, when the leaves are ſhedding, they muſt be carefully taken up, and planted in a nurſery, in rows, about ſixteen inches aſunder, and eight or nine inches diſtance from each other in the rows. Here they may ſtand two years, by which time they will be fit for removing to the places where they are deſigned to remain. The beſt ſeaſon for tranſplanting them is in Autumn, and they thrive beſt in light, ſandy, dry earth.

The ſecond, third, and fourth ſpecies are alſo raiſed from ſeeds, which ſhould be ſown in a dry ſoil, and a warm ſituation. After the plants come up they ſhould be treated in the ſame manner as the former ſorts.

The ſeeds of the ſixth, ſeventh, and ninth ſpecies ſhould be ſown in pots, for they will not bear the open air of our climate in winter, but muſt have a good green-houſe to preſerve them.

The tenth ſpecies will not thrive in this country without the help of the bark-ſtove, and it will not bear tranſplanting.

DATE-TREE, a ſpecies of the *Palma* or *Palm-tree.* Theſe trees grows plentifully in Africa and ſome of the eaſtern countries, from whence the fruit is brought to England. They riſe to a great height in the places where they are native. The leaves of theſe trees, when grown to a ſize for bearing fruit, are ſix or eight feet long; theſe have narrow long leaves ſet on alternately their whole length.

The ſmall leaves or lobes are toward the baſe three feet long, and little more than one inch broad; they are cloſely folded together when they firſt appear, and are wrapped round with brown fibres or threads, which fall off as the leaves advance, making way for them to expand; theſe never open flat, but are hollow like the keel of a boat, with a ſharp ridge on their back; they are very ſtiff, and, when young, of a bright green, ending with a ſharp black ſpire. The flowers come out in very long bunches from the trunk between the leaves, and are covered with a ſpatha or ſheath which opens and withers. They have no ſtamina but have a roundiſh germen which afterwards becomes an oval berry, with a thick pulp incloſing a hard oblong ſtone, with a deep furrow running longitudinally. The bunches of fruit are ſometimes very large.

Culture of the DATE-TREE.

Theſe plants may eaſily be produced from the ſeeds taken out of the fruit, provided they are freſh, which ſhould be ſown in pots filled with light rich earth, and plunged into a moderate hot-bed of tanners bark, which ſhould be kept in a moderate temperature of heat, and the earth frequently refreſhed with water. When the plants are come up, they ſhould be tranſplanted each into a ſeparate ſmall pot filled with the ſame light earth, and plunged into a hot-bed again, where they muſt be watered, and have freſh air admitted to them in proportion to the warmth of the ſeaſon, and the bed in which they are placed. During the ſummer time they ſhould remain in the ſame hot-bed, but in the beginning of Auguſt they ſhould by degrees be inured to more air, to harden them againſt the approach of winter; for if they are too much forced, they will be ſo tender as not to be preſerved through that ſeaſon without much difficulty, eſpecially if there is not the conveniency of a bark ſtove to keep them in.

The beginning of October remove the plants into the ſtove, placing them where they may have a moderate ſhare of heat. They might be preſerved alive in a cooler ſituation, but their progreſs would be ſo much retarded, as not to recover their vigour the ſucceeding ſummer.

Whenever theſe plants are removed, which ſhould be done once a year, great care ſhould be taken not to cut or injure their large roots, which is very hurtful to them. All the ſmall fibres which are inclinable to mouldineſs, muſt be taken off, or they will in time decay, and hinder the freſh fibres from coming out, which will greatly retard the growth of the plants.

The compoſt proper for theſe plants, muſt be made in the following manner; half of light freſh earth from a paſture ground, the other half ſea ſand, and rotten dung, or tanners bark, in equal proportion; theſe muſt be carefully mixed, and laid in a heap three months at leaſt before it is uſed, often turning it over to prevent the growth of weeds and to ſweeten the earth.

Always obſerve to allow them pots proportionable to the ſizes of the plants, but you muſt never let them be too large, which would be of worſe conſequence than their being too ſmall. During the ſummer they ſhould be frequently refreſhed with water, but care muſt be taken not to give it in too large quantities, and in winter they will require very little.

Theſe plants are very ſlow growers, even in their native countries, ſo that it cannot be expected they ſhould advance very faſt here; but they may be greatly forwarded, by placing the pots in a hot-bed of tanners bark, which ſhould be renewed as often as neceſſary, and the plants continued therein both winter and ſummer.

D'AYENA, a genus of plants which receives its name from Le Duc D'Ayen, a lover and promoter of the ſcience of botany, and of which there is but one ſpecies.

This plant grows naturally in Peru, it has a weak ligneous ſtalk a foot high, which divides into ſeveral horizontal branches, decorated with oblong heart-ſhaped leaves, which are ſlightly indented on their edges, ſtanding upon pretty long footſtalks; they are of a lucid green, and end in acute points.

At the baſe of each footſtalk, from the ſide of the branches, the flowers appear, two, three, or four ariſing from the ſame point, each ſtanding upon a ſeparate ſlender footſtalk; they are tubulous, and ſpread open at the top, their colour is a fine purple; and there is a continual ſucceſſion of flowers upon the ſame plants from July to winter.

Culture of the D'AYENA.

This plant is propagated by ſeeds, which ſhould be ſown upon a moderate hot-bed early in the ſpring; and when the plants have four leaves, part of them may be tranſplanted on a freſh hot-bed, and part into ſmall pots, and plunged into a hot-bed of tanners bark, ſhading them till they have taken new root; after which the freſh air ſhould be admitted to them in proportion to the warmth of the ſeaſon. Theſe plants ſhould continue in the hot-bed all the ſummer, where they muſt have a great ſhare of air, for thoſe which are expoſed to the open air will not thrive, and if they are too much drawn, they will not flower well, nor will they perfect their ſeeds, unleſs they are brought forward in the ſpring, and ſheltered in the ſummer.

DECEMBER, the twelfth and laſt month in the year.

All that demands the attention of the gardener at this time, is the care of his flower beds, and they muſt be covered up or opened, as the ſeaſon changing from cold to heat may direct. Look carefully over the ſtove and green-houſe plants. The cloſeneſs of the green-houſe, eſpecially if there has been too free watering, will occaſion mouldineſs on ſome of the more tender plants, to prevent which, let care be taken not to moiſten the cloſe air by too free a watering of the plants, and let the mouldineſs be carefully rubbed off wherever it appears; and as this will not prevent it ſometimes riſing again, it ſhould be then wiped off with a flannel wetted in a ſlight brine. When the leaves are faded paſt recovery, they muſt be immediately pulled off, and great care taken that they are cleared out of the green-houſe directly, for dead leaves are very prejudicial to all the plants. Let the ſame practice be obſerved in the ſtove, the windows of which ſhould be laid open in the middle of a mild day. Here let the heat be carefully kept up to a due height, without exceeding thoſe bounds: and let the plants be watered in proportion, the more for the increaſed heat, but always by little at a time.

In the ſeminary let the earth be turned which was laid up in ridges, and a little ſoot ſcattered over it with an even hand. Look to the ſeed-beds of thoſe kinds moſt in danger from vermin, and bait the traps with due care. Draw up the earth in mild days about new planted ſhrubs, and ſee the ſtakes of the reſt keep ſecure, that the winds cannot rock them.

In the fruit-garden take care that the new planted trees are defended from ſevere froſts, by keeping the ground well covered, and from winds, by ſeeing that their ſupports are ſecure.

In the kitchen garden ſee the Artichoke plants well earthed up, and continue the care of the Cauliflower-plants, which are under glaſſes, by giving them air in the moſt ſavourable hours, to prevent their decay, and give air alſo to the young ſallading. If the weather is tolerably mild, you may plant the ſeveral kinds of Cabbages for ſeed.

DEVIL IN A BUSH, or FENNEL-FLOWER, *Nigella*, a genus of plants, ranged by Linnæus among the *polyandria pentagynia*, and of which there are five ſpecies. 1. Devil in a Buſh, with flowers, encompaſſed with a leafy involucrum. 2. Devil in a Buſh, with petals nearly three-pointed, and leaves ſomewhat hairy. 3. Devil in a Buſh, with five pointals, entire petals, and turbinated ſeed-veſſels. 4. Devil in a Buſh, with ten pointals, equalling the Corolla. 5. Devil in a Buſh, with ten pointals longer than the Corolla.

Theſe are all annual plants; the firſt ſpecies grows wild among the corn, in the ſouthern parts of Europe; the ſecond is a native of Egypt and Crete; the third grows naturally among the corn in France and Italy, and Germany; the fourth in the ſouth parts of France and Spain; and the fifth about Aleppo. They abound in varieties with double flowers, white, blue, yellow, &c. Thoſe with ſingle flowers are never admitted into gardens.

Culture of the DEVIL IN A BUSH.

All theſe plants are propagated by ſeeds, which ſhould be ſown in patches upon a bed of light earth, where they are to remain: for they ſeldom ſucceed well if tranſplanted.

When the plants come up, they muſt be thinned where they grow too cloſe, leaving but three or four of them in each patch, obſerving to keep them clear from weeds, which is all the culture they require. In July they will produce their flowers, and their ſeeds will ripen in Auguſt, when they ſhould be gathered and dried: then rub out each ſort ſeparately, and preſerve them in a dry place.

The ſeaſon for ſowing theſe ſeeds is in March; but if ſome of them is ſown in Auguſt, ſoon after they are ripe, upon a dry ſoil and in a warm ſituation, they will abide through the winter, and flower ſtrong the ſucceeding year; and by ſowing the ſeeds at different times, they may be continued in beauty moſt part of the ſummer.

DEVIL's BIT, a ſpecies of the Scabious. See the article SCABIOUS.

DIAMOND FICOIDES, DIAMOND PLANT, or ICE PLANT. See the article ICE PLANT.

DILL, *Anethum*, a genus of plants, ranged by Linnæus among the *pentandria digynia*, and of which he diſtinguiſhes two ſpecies: Dill, ſtrictly ſo called, and Fennel. Two diſtinct genera according to other authors.

Dill is an annual plant; and a native of Spain and Portugal.

Culture of DILL.

This plant is propagated by ſowing the ſeed in autumn, ſoon after they are ripe; for if they are kept out of the ground till ſpring, they frequently miſcarrry; or if any of the plants do come up, they often decay before they have perfected their ſeeds. They love a light ſoil, and muſt be ſown where they are to remain, for they will not bear tranſplanting; therefore, the beſt way is, when the plants are come up, to hoe them out, leaving the plants about eight or ten inches aſunder, every way; obſerving to keep them clear from weeds. When the ſeeds are ripe, the heads or umbels ſhould be cut, and ſpread upon a cloth to dry, and then beat out for uſe.

DIOSCOREA, a genus of plants, for which there is no Engliſh name. There are five ſpecies. 1. Climbing Dioſcorea, with black briony leaves, and fruit growing in long bunches. 2. Climbing Dioſcorea, with a ſpear-pointed leaf, and fruit growing in long bunches. 3. Climbing Dioſcorea, with a roundiſh pointed leaf, and fruit growing in long bunches. 4. Dioſcorea, with heart-ſhaped leaves, and a winged ſtalk, bearing bulbs, commony called Yam. 5. Dioſcorea, with heart-ſhaped leaves, growing alternate and oppoſite, and a ſmooth ſtalk.

The firſt ſort grows naturally in moſt of the iſlands of the Weſt-Indies; it has ſlender climbing ſtalks, which fix themſelves to any ſupport near them, and riſe to the height of eighteen or twenty feet, decorated with heart-ſhaped leaves, ending in acute points; they ſtand upon pretty long foot-ſtalks, from the baſe of which ariſe a branching ſpike of flowers, which are ſmall, and of no beauty.

The ſecond ſort differs from the firſt in the ſhape of its leaves: theſe having two round ears at their baſe, but the middle extends to an acute point; the bunches of flowers are longer, and looſer placed than thoſe of the former ſort.

The third ſort has broad, round, heart-ſhaped leaves, ending in acute points; and the flowers come out on long, looſe ſtrings, ſtanding on ſhort foot-ſtalks.

The fourth ſort has triangular winged ſtalks, which trail upon the ground, and extend to a great length; theſe frequently put out roots from their joints, as they lie upon the ground, whereby the plants are multiplied.

The fifth ſort grows naturally in Virginia, and other parts of North America; this has a ſmooth ſtalk, which climbs on the neighbouring plants, and riſes five or ſix feet high, decorated with heart-ſhaped leaves. The flowers come out from the ſides of the ſtalks, in the ſame manner as the other ſorts, but have no beauty.

Culture of the DIOSCOREA.

The firſt, ſecond, third, and fifth ſpecies, are propagated by laying their branches into the ground, which in three months will put out roots; they ſhould then be taken from the old plants, and ſet into ſeparate pots, which muſt be plunged into the tan-bed in the ſtove; during winter they ſhould have but little water: but in ſummer, when the plants grow vigorouſly, they require more; and in warm weather a large ſhare of air ſhould be admitted to them.

When the ſeeds of theſe plants are brought to England, they ſhould be immediately ſown in pots, and plunged in a hot-bed, where, if the ſeeds are freſh, the plants will come up in two months; but ſometimes they remain in the ground till the following ſpring, before the plants appear; when this happens, the pots ſhould be ſcreened from the froſt in the winter, and put into a new hot-bed in the ſpring, which will bring up the plants.

The fourth ſpecies is propagated by cutting the root into pieces, obſerving to preſerve an eye or bud to each, as is practiſed in planting of Potatoes; each of theſe being planted will produce three or four large roots. In America they are commonly ſix or eight months in the ground, before the roots are taken up for uſe: which when roaſted or boiled, are eaten by the inhabitants, and ſometimes they make them into bread.

DIOSMA, *African Spirea*, a genus of plants of which there are four ſpecies. 1. African Spiræa, with leaves placed in the form of a croſs. 2. Dioſma with narrow hairy leaves. 3. Dioſma with ſmooth, narrow, acute leaves, which are ſpotted on their under ſide. 4. African Spiræa, with leaves like the berry-bearing heath.

The firſt ſort riſes to the height of three or four feet; the branches are ſlender, and riſe from the ſtem very irregularly; the leaves are placed croſs-ways; and the flowers are produced at the end of the branches, between the leaves: theſe plants continue a long time in flower, and make a fine appearance when they are intermixed with other exoticks in the open air.

The ſecond ſort is a very elegant ſhrub, growing to the height of five or ſix feet; the ſtalks are of a fine coral colour; the leaves come out alternately on every ſide of the branches; they are narrow, pointed, and hairy: the flowers, which are ſmall and white, are produced in cluſters at the end of the ſhoots. Theſe, and the whole plant, have a moſt agreeable ſcent.

The third ſort riſes from two to three feet high, forming a buſhy head, the leaves are ſmooth, narrow, and acute pointed, having two or three ſpots on their under ſide, the flowers are ſmall, of a blueiſh colour, and come out at the end of the ſhoots.

The fourth ſort is of humbler growth than any of the former, ſeldom riſing above two feet high, and ſpreads out into many branches, the leaves are ſmooth, and reſemble thoſe of the Heath. The flowers are produced in cluſters at the end of the branches, like thoſe of the ſecond ſort, but are ſmaller, and the bunches not ſo large.

Culture of the DIOSMA.

All theſe plants are propagated by cuttings, which may be planted in pots during any of the ſummer months, and plunged in to a moderate hot-bed, where, in the middle of the day, they ſhould be ſhaded from the ſun, and frequently refreſhed with water. In about two months the cuttings will have taken root; they muſt then be tranſplanted each into a ſeparate ſmall pot, and placed in a ſhady ſituation till they have taken root, when they may be placed among other tender exotics. Here they may remain till the beginning of October or later if the ſeaſon continues favourable, for they only require to be ſheltered from froſt, ſo that they may be preſerved very well through winter in a dry airy green-houſe, and in ſummer they may be expoſed to the open air, with other green-houſe plants.

DIRCA, a genus of plants of which there is but one ſpecies.

This ſhrub grows naturally in moiſt places, it riſes to the height of four and ſometimes five feet; the flowers come out early in the ſpring before the leaves; they are ſmall, tubulous, and of an herbaceous colour ſo make very little appearance. The leaves are oval, ſmooth, and of a pale green.

Culture of the DIRCA.

This plant is propagated by layers, which are commonly two years before they put out roots. They ſhould have a moiſt ſoil and a ſhady ſituation.

DISK or DISC, an aggregate of florets forming as it were a plain ſurface.

DITTANDER or PEPPERWOLT, *Lepidium*; a genus of plants of which there are many ſpecies. Scarce any of them are cultivated in gardens, except for the ſake of variety. If they are permitted to ſcatter their ſeeds in autumn they will come up early in the ſpring, when they ſhould be kept clear ftom weeds which is all the culture they require.

DITTANY, a ſpecies of Origany. See the article ORIGANY.

DOGSBANE, *Apocynum*, a genus of plants ranged by Linnæus among the *pentandria monogynia*, and of which there are five ſpecies. 1. Dogſbane with an erect herbaceous ſtalk, oval leaves, ſmooth on both ſides, and terminated by a head of flowers. 2. Dogſbane with an erect herbaceous ſtalk, oblong leaves, and heads of flowers on the ſides of the branches. 3. Dogſbane with an erect herbaceous ſtalk, and oval, ſpear-ſhaped leaves. 4. Dogſbane with an upright ſhrubby ſtalk, oval ſpear-ſhaped leaves, and acute flowers. 5. Dogſbane with a perennial twining ſtalk, and oval veined leaves.

The firſt and ſecond ſpecies of this plant are natives of Canada and Virginia, and have perennial roots.

The third ſpecies grows naturally in the iſlands of the Adriatic ſea.

The fourth is a ſhrubby plant, and a native of Ceylon, and the fifth grows naturally in India.

Culture of the DOGSBANE.

The firſt and ſecond ſpecies are propagated by parting of the roots, for they ſeldom ripen their ſeeds in England. They are however hardy plants, and ſhould have a light dry ſoil, and their roots muſt be parted in March, before they begin to put out new ſtalks.

The third ſpecies is alſo propagated by parting the roots. It never produces any ſeeds, even at Venice where it grows without culture. The ſtalks decay in autumn, and new ones are put out from the roots in the ſpring, which is the beſt ſeaſon for removing and parting the roots.

The fourth ſpecies is very tender, and muſt be conſtantly kept in a hot-houſe, and plunged in the tan-bed, otherwiſe it will not thrive in England. It may be propagated by cuttings during the ſummer months, the cuttings muſt be laid in the ſtove three or four days to dry before they are planted. They ſhould be ſparingly watered, eſpecially in winter, and ſhould be planted in light ſandy earth.

The fifth ſpecies is propagated in the ſame manner as the fourth, only that it requires to be kept conſtantly in the ſtove, otherwiſe it will not live in this country.

DOGSBANE, *Tutſan leaved Apocynum.* This is a very ſingular and beautiful plant, eaſily raiſed in our gardens, and worthy to be made univerſal in them; not only for the flower, but for the leaves and general manner of growth.

It riſes a yard high; is of regular growth, and very handſome aſpect. The root is very long, irregularly divided, browniſh, and hung at diſtances with tufts of ſlender white fibres. The ſtalks riſe ſingle from each head of the root, and they are upright, firm, ſmooth, red toward the baſe, and of a green and brown variouſly mixed upwards. The branches are not numerous, but they grow with great regularity from the boſoms of the upper leaves. Theſe, as alſo the tender part towards the top of the principal ſtalk are uſually ſpotted and ſtained with irregular dots of brown. The leaves are placed in pairs at diſtant joints, and they are ſupported by ſhort reddiſh footſtalks. They are broad, ſhort, of a figure nearly oval, and of a firm ſubſtance. Their colour is a deep green, and they have conſpicuous veins, of which the middle one is uſually ſtained with purple, and the others are white. The footſtalks of theſe leaves are a little hollowed; and the under part of the whole leaf is of a much paler green than the upper, and downy.

The flowers are ſmall, but they are ſingular in form and colouring, and their number makes ſome amends for their want of ſize. They crown the top of the main ſtalk, and the extremities of all the branches, in a kind of circular tufts, not cloſe ranged and compact, but regular enough, and of no ſhort continuance. The ground colour of the flower is white, but it is ſtained in various proportions with a lively crimſon, ſometimes this colour is diſpoſed in ſtreaks and rays.

Culture of the Tutſan leaved APOCYNUM.

It is a native of North-America, where it thrives beſt in a deep, rich, and light mould, in thickets, at the ſides of foreſts, or near lofty trees. It does not bear abſolute ſhade, nor will grow freely where there is an open ſun.

We learn by this to compoſe an artificial ſoil for it, and adopt a proper ſituation.

Let the gardener mix one buſhel of meadow-earth, rich and black; two buſhels of pond-mud, three pecks of wood-pile earth, and one of hog's-dung; they ſhould be thrown up in a heap, and turned at times.

When this is ready, and ſeeds are procured from America, let a pot be filled with it, and ſome of them ſcattered over the ſurface; cover them a quarter of an inch with the ſame compoſt; this being done early in March, let the ſhooting of the ſeeds be promoted, by ſetting the pot up to the rim in a bark-bed. The plants, when they have a little height, ſhould be removed into ſeparate ſmall pots, and ſhaded in the hot-bed till they have taken root. After this they muſt be hardened to the air.

In May let a border be choſen that is well-ſheltered, warm, and ſomewhat ſhaded, at leaſt, that has not any time the full blaze of a noon-day ſun. Let the earth be dug out of this for a ſpace ſufficient for the number of plants intended to be preſerved, and throw in the compoſt ten inches deep. Take the plants carefully out of the pots, with the whole ball of earth, and trim the outſide fibres. Open holes at a foot and a half diſtance, and ſet in the whole ball of earth, with its plant perfectly upright. Draw ſome mould over the ſurface of the ball of earth from the pot, and ſettle it well about the ſtem, and then give every evening a gentle watering, and the plantation will ſucceed. Their own earth will afford nouriſhment enough to the roots for the firſt days: and after this the fibres on the ſurface will ſhoot; the ball will crack and break with the frequent waterings, and new ſhoots will be formed every way. Some of the plants will flower the firſt ſeaſon, and all the ſucceeding ſummer.

DOG'S-TOOTH, or DOG'S-VIOLET, *Erythronium*, a genus of plants, ranged by Linnæus among the *hexandria monogynia*, and of which there are two ſpecies. 1. Dog's-tooth, with a broad and round leaf, and a purple red flower. 2. Dog's-tooth, with a longer and narrower leaf, and a purpliſh flower.

The firſt ſort ſends out two oval leaves, which are joined at their baſe, three inches long, and one and a half broad in the middle; theſe at firſt embrace each other, incloſing the flower, but afterward they ſpread flat upon the ground: they have purple and white ſpots all over their ſurface; between theſe riſes a ſingle naked ſtalk, about four inches high, of a purple colour; this ſuſtains one flower, compoſed of ſix petals, which in ſome are purple, and in others white; the flower hangs downward, and the petals reflex and ſpread open to their baſe. The root of this plant is white, oblong, fleſhy, and ſhaped like a tooth, from whence it had the title of Dog's-tooth.

The ſecond ſort differs from the firſt in the ſhape of its leaves, which are longer and narrower, and the flowers are a little larger, but not ſo well coloured. They grow naturally in Hungary, and ſome parts of Italy.

Culture of the DOG'S-TOOTH.

Both theſe ſpecies are propagated by off-ſets from their roots; they may be tranſplanted any time after the beginning of June, when their leaves will be quite decayed, till the middle of September; but the roots ſhould not be kept long out of the ground: for if they ſhrink, it will often cauſe them to rot; the roots of theſe flowers ſhould not be planted ſcattering in the borders of the flower-garden, but in patches near each other, where they will make a good appearance. They delight in a gentle loamy ſoil, and a ſhady ſituation.

DOVE'S-FOOT. See GERANIUM.

DRAGON, *Dracontium*, a ſpecies of Arum. This plant grows naturally in moſt of the iſlands in the Weſt-Indies; it has trailing ſtalks, which put out roots at every joint that faſten to the trunks of trees, walls, or any ſupport which is near them, and thereby riſe to the height of twenty-five, or thirty feet. The leaves are placed alternately upon long foot-ſtalks; they are four or five inches long, and two and a half broad, and have ſeveral oblong holes in each, which on the firſt view appear as if eaten by inſects, but are natural to the leaves. The flowers are produced at the top of the ſtalk, which always ſwell to a much larger ſize in that part, immediately under the flower, than in any other; their colour is a pale yellow, inclining to white.

There are other ſorts of this ſpecies, but they are never cultivated in gardens.

Culture of the DRAGON.

It is eaſily propagated by cuttings, which if planted in pots filled with poor ſandy earth, and plunged into a hot-bed, will ſoon put out roots. The plants are too tender to live in the open air of our climate; therefore the pots ſhould be placed near the walls in the hot-houſe, againſt which the plants will climb; they ſhould have but little water given them in winter, but in warm weather they require it frequently, at which time the freſh air ſhould always be admitted to them. The plants have no particular ſeaſon for flowering; ſometimes they flower in autumn, and ſometimes in the ſpring, but they do not ripen their ſeeds in England.

DRAGON'S-HEAD, *Dracocephalum*, a genus of plants, ranged by Linnæus among the *didynamia gymnoſpermia*, and of which there are eleven ſpecies. 1. Dragon's-head, with ſpiked flowers, and ſpear-ſhaped ſawed leaves. 2. Dragon's-head, with ſpiked flowers, and compound leaves, commonly called Balm of Gilead. 3. Dragon's-head, with ſpiked flowers, and heart-ſhaped, winged, ſinuated leaves. 4. Dragon's head, with ſpiked flowers, and the leaves and bracteæ narrow, divided and prickly. 5. Dragon's-head, with ſpiked flowers, and the leaves and bracteæ ſpear-ſhaped and undivided. 6. Dragon's-head, with flowers growing in whorls, oval, cut and crenated leaves, and ſpear-ſhaped intire bracteæ. 7. Dragon's-head, with flowers growing in whorls, ſpear-ſhaped bracteæ, and capillary ſerratures. 8. Dragon's-head, with flowers growing in whorls, oblong bracteæ, prickly ſerratures, and woolly leaves. 9. Dragon's-head, with flowers growing in whorls, and orbicular, ſawed, hairy bracteæ. 10. Dragon's-head, with flowers growing in whorls, oblong, oval, and entire bracteæ, and large nodding petals. 11. Dragon's-head, with flowers growing in whorls, oblong entire bracteæ, and petals ſcarce larger than the cup.

The firſt, ſecond, fourth and fifth ſpecies of this genus are perennial; the third is a biennial, and the reſt are annual plants.

The ſecond ſort is a native of the Canary Iſlands; it is uſually called by the gardeners Balm of Gilead, from the ſtrong reſinous ſcent which the leaves emit on being rubbed. This plant riſes with ſeveral ſquare ſtalks to the height of three feet, or more, decorated with compound leaves at each joint, which are placed oppoſite. The flowers terminate the ſtalks in ſhort thick ſpikes, and are of a pale blue colour.

The fourth ſpecies grows naturally in Auſtria, and the fifth in Siberia and Sweden. The ſixth, tenth, and eleventh, are natives of Siberia; the ſeventh of Moldavia, and the eighth and ninth are natives of the eaſt.

The firſt, fourth, and fifth ſpecies are propagated by parting of the roots in autumn; they will live in the air: but a moiſt ſoil is beſt for theſe plants: and care ſhould be taken to water them frequently in dry weather.

The ſecond and third ſpecies are propagated by ſeeds, which if ſown in autumn will more certainly grow than thoſe which are ſown in the ſpring: but if theſe ſeeds are ſown in pots, they muſt be ſheltered under a frame in winter; and if the plants do not come up the ſame autumn, they will in the ſpring. If the ſeeds are ſown in the full ground, it ſhould be in a warm border, and in froſt they ſhould be ſheltered.

Theſe plants may alſo be propagated by cuttings, which if planted in a ſhady border, any time in ſummer, will ſoon take root, and furniſh plenty of rooted plants; it continues producing flowers moſt part of the ſummer, and is uſually kept in green-houſes; but in mild winters the plants will live abroad.

The ſixth, eighth, ninth, tenth, and eleventh ſpecies, are all propagated by ſeeds, ſown either in the ſpring or autumn, in the places where they are to remain, and will require no other culture than to be thinned and kept clean from weeds.

Baſtard-DRAGON, a ſpecies of the Hæmanthus; this plant has roots compoſed of many thick fleſhy tubercles, which join at the top, where they form a head, out of which ariſes a fleſhy ſpotted ſtalk, like that of the Dragon, which ſpreads out at the top into ſeveral ſpear-ſhaped leaves, waved on their edges. The ſtalks grow about a foot high; the leaves are ſix or eight inches long, and two broad in the middle, from the ſide of the ſtalk near the ground, breaks out a ſtrong fleſhy foot-ſtalk, about ſix or eight inches long, ſuſtaining at the top a large cluſter of flowers, of a yellowiſh red colour; theſe appear in May, June, or July, and are ſucceeded by berries, which are of a beautiful red colour when ripe.

Culture of the BASTARD-DRAGON.

This plant may be propagated by parting of the roots in the ſpring, before the plants put out new ſtalks: this is alſo the right time to ſhift and new pot them; but as the roots do not multiply very faſt in off-ſets, the beſt way is to propagate them from ſeeds, which they ripen plentifully in England; theſe ſhould be ſown ſoon after they are ripe, in pots filled with light earth, and kept in the ſtove during the winter.

If theſe pots are plunged into the tan-bed in the bark-ſtove, in the vacancies between the plants, the earth will be kept warm, and will not dry ſo faſt as in a dry ſtove, by which method the ſeeds will be ſooner prepared to vegetate. In the ſpring the pots may be taken out of the ſtove, and plunged into a hot-bed, which will bring up the plants: theſe muſt have air admitted to them every day in warm weather; and when they are fit to be removed, they muſt be planted into ſeparate ſmall pots, filled with light earth, and plunged into the hot-bed again, to promote their taking new root: then they muſt be carefully hardened, and afterwards removed into the dry-ſtove, where they ſhould conſtantly remain.

DRAGON-TREE, a ſpecies of the Palma, or Palm-tree.

This tree grows naturally in the Cape de Verd iſlands; it is called Dragon-tree, becauſe the inſpiſſated juice of the plants becomes a red powder, very like the eaſtern dragon's-blood, and is frequently uſed inſtead of it in the ſhops; but the tree from whence the true dragon's-blood is taken, is of a very different genus from this.

The trunk of this tree riſes twelve or fourteen feet high; there are the circular marks or rings left the whole length where the leaves are fallen off; for as theſe half embrace the ſtalk with their baſe, ſo when they fall away, the veſtigia where they grew remain. The top of the ſtalk ſuſtains a large head of leaves, which come out ſingly all round it; theſe are often four or five feet long, and an inch and a half broad at their baſe, where they embrace the ſtalk, and leſſen gradually to the end, where they terminate in a point; theſe leaves are pliable, and hang down all round the ſtem; they are entire, of a deep green, and ſmooth on both ſurfaces.

Culture of the DRAGON-TREE.

This tree is propagated by ſeeds in the ſame manner as the Date-tree. See the article DATE-TREE.

The plants will bear to be expoſed to the open air, in a warm ſheltered ſituation, during the three warmeſt months: but they ſhould be removed into the dry-ſtove before the morning froſts come on in autumn, and here they may remain all the winter; they ſhould have but little water during this ſeaſon, and in ſummer, unleſs it is remarkably dry they ſhould be very ſeldom watered: for too much moiſture will deſtroy them.

DROPWORT, *Filipendula*, a ſpecies of the Spiræa. See the article SPIRÆA.

African DROSERA, a genus of plants, ranged by Linnæus among the *pentandria pentagynia*.

This curious little plant, though a native of the warmeſt parts of Africa, is capable of bearing our climate in a full expoſure, unhurt. The root is fibrous and reddiſh. The leaves are numerous, and very elegant; they riſe from the root by a narrow baſe, and at the height of an inch begin to ſwell out into breadth; they are largeſt in the middle, and terminate in a ſharp fine point.

The univerſal tinct is red; a mixture of a browniſh caſt obſcures the full glare of the colour: but there is with this ſomewhat of crimſon and of purple; they are covered with long and ſtiff hairs, of a tawny rediſh: and they are moſt frequent at the edges. Upon the ſurface of theſe leaves ſtand large round drops of a tranſparent fluid, reflecting the colour of the hairs, and glittering like gems. The ſtalk which ſupports the flowers, riſes with theſe, and exceeds them conſiderably in height. The length of the leaves, when in full perfection, is about five inches, and their breadth half an inch; but this ſtalk will grow to a foot in height, and riſes tolerably erect and firm; its colour is a purpliſh brown, and it has neither leaves on it nor branches. The flowers grow in a ſhort ſpike at the top, never exceeding eight or ten in number, and they are ſmall; they do not open freely: but when they approach to it, their milk-white colour affords a fine contraſt, with the red of the whole plant.

Culture of the DROSERA.

This plant is propagated by ſeeds, which ſhould be procured from Africa. Early in the ſpring ſow them in a damp ſoil and ſheltered ſituation, juſt opening the ſurface of the ground to receive them. When the plants come up, they will require no other culture than being kept clean from weeds. If they do not flower, they will at leaſt ſhew their leaves, and theſe have ſufficient beauty to attract the eye of every curious beholder.

DRUPE, a ſort of pericarpium, conſiſting of a ſoft, fleſhy, and ſucculent pulp, in the centre of which there is a nucleus.

DUCK'S-FOOT, or MAY-APPLE, *Podophyllum*, a genus of plants, ranged by Linnæus among the *polyandria monogynia*, and of which there are two ſpecies. 1. Duck's-foot, with target-ſhaped leaves, having lobes. 2. Duck's-foot, with half heart-ſhaped leaves, two growing at a joint.

Both theſe ſpecies are natives of North America; they riſe in the ſpring about ſix inches high; their leaves are ſmooth, and of a light green, and they bear a white flower.

Culture of the DUCK'S-FOOT.

Theſe plants propagate ſo faſt by their creeping roots, that few perſons are at the trouble of ſowing the ſeeds; every part of the root will grow, ſo they may be annually parted, either in autumn, when their leaves decay, or in ſpring juſt before the roots begin to ſhoot; they require no other culture than being kept clean from weeds.

They love a light loamy ſoil, and a ſhady ſituation, and are ſo hardy, as ſeldom to be injured by froſt.

DUNG, in agriculture, &c. All kinds of Dung contain ſome matter, which when mixed with the ſoil, ferments therein, and by that fermentation diſſolves the texture of the earth, and divides and crumbles its particles very much. This is the real uſe of Dung in agriculture: for as to the pure earthy part of it, the quantity is ſo very ſmall, that after a perfect putrefaction, it bears an extremely inconſiderable proportion to that of the earth it is intended to manure.

The fermenting quality of Dung is principally owing to the ſalts it contains: and yet thoſe or any other ſalts applied immediately to the roots of the plants, always deſtroy them; this proves that the buſineſs of Dung is not to nouriſh, but to divide and ſeparate that terreſtial matter, which is to afford the nouriſhment to vegetables, through the mouths of their roots. And the acrimony of the ſalts of dung is ſo great, that the niceſt managers we have (the floriſts) have wholly baniſhed the uſe of it from their gardens. If the uſe of it was alſo aboliſhed in kitchen-gardens, it would be much better: for it is poſſible to ſucceed full as well without it; and it gives an ill taſte to all the excellent roots and plants that are to ſtand in the earth, in which it is an ingredient. The water of a Cabbage raiſed in a garden, manured with dung, if boiled, is of an intolerable ſtink; but this is not ſo much owing to the nature of the plant, as of the manure uſed to it; for a field Cabbage being boiled, the water has ſcarce any ſmell, and what it has, is not diſagreeable. It is alſo a well known fact in the country, that a Carrot raiſed in a garden has none of that ſweet flavour that ſuch as grow in the fields have; but in the place of this fine natural reliſh, it has a compound taſte, in which the matter of the manure has no ſmall ſhare; and this difference extends to the taſte of all roots nouriſhed with ſuch different diet.

Dung not only ſpoils the flavour of the eſculent vegetables, but the drinkables alſo, into the original compoſition of which it enters; they are obliged to uſe Dung in the poor vineyards of Languedoc: and the conſequence is, that the wine is nauſeous. The poor, who only raiſe a few Vines for the wine they drink themſelves, and cannot be at the expence of this manure, have leſs of it, but then it is far preferable in flavour to the other; and it is a general obſervation, that the poor people's wine in Languedoc is the beſt, becauſe they carry no Dung into their vineyards.

Another diſadvantage attending the uſe of Dung, is, that it gives riſe to worms; it is for this reaſon, that garden Carrots are generally worm-eaten, and field Carrots ſound: and the ſame obſervation will hold good in other vegetables, in the field, and in the garden. Vegetable and animal Dung are in fact only the putrefaction of earth, after it has been altered by paſſing through animal or vegetable veſſels. Vegetable Dung, unleſs the vegetable be buried alive in the ſoil, makes a much leſs ferment in it, than animal Dung does; but the Dung or putrid matter of vegetables, is much more eligible and wholeſome for the eſculent roots and plants, than that of animals.

Venomous animals are found to be very fond of Dung, and the ſcent often brings them into thoſe gardens where it is uſed as manure; the ſnakes uſually frequent dung-hills, and lay their eggs in them; and gardens, where dung is much uſed, are always frequented by toads: whereas the fields where roots are planted, are much leſs infeſted by them. There are ſome ſorts of Dung hot and light, as ſheep, horſes, pigeons, &c. others fat and cooling, as that of oxen, hogs, &c.

There are two remarkable qualities in dung: the one is to produce a ſenſible heat, capable of bringing about great effects: the other is to fatten the ſoil and render it more fertile; the firſt of theſe is ſeldom found in any other Dung but that of horſes and mules, while newly made, and a little moiſt; the great effects of this are ſeen in the kitchen-garden, where it invigorates and gives a new life to every thing, ſupplying the place of the ſun; and to this we owe in a manner all the early vegetables of the ſpring.

The Dungs of pigeons, hens, and geeſe, are recommended by ſome authors, as better than any other for Aſparagus, Strawberries, and for the propagation and culture of the tenderer garden-flowers; the Dung of pigeons is alſo particularly recommended by ſome for thoſe trees, whoſe leaves are apt to turn yellow, if they grow in cold ſoils: but for this uſe it ſhould firſt lie three years in a dung-hill, and then be applied ſparingly in autumn, laying about an inch thickneſs of it at the root of the tree, and ſuffering it to remain there till the March following.

The Dung of poultry being hot and full of ſalts, tends much to facilitate vegetation, and is abundantly quicker in its operation, than the Dung of animals.

DURANTIA, a genus of plants, for which there is no Engliſh name, and only two ſpecies. 1. Prickly Durantia. 2. Durantia without thorns.

The firſt ſpecies has many trailing branches, which are armed with hooked thorns at every joint, and decorated with oblong leaves, which are placed without order. The flowers come out from the ſides of the ſtalks in pretty long bunches, and are of a pale blueiſh colour.

The ſecond ſort has a branching woolly ſtalk, which riſes ſeven or eight feet high; the branches are decorated with oval ſpear-ſhaped leaves, ſawed on their edges, of a lucid green colour, and ſtand oppoſite. The flowers, which are blue, are produced in long bunches at the end of the branches.

Culture of the DURANTIA.

Theſe plants being natives of warm countries, require a ſtove to preſerve them in winter; they are propagated by ſeeds, which ſhould be ſown in ſmall pots, and plunged into a hot-bed of tanners-bark. When the plants are fit to remove, they muſt be planted each into a ſeparate ſmall pot, and plunged into a hot-bed again, obſerving to ſhade them till they have taken new root, then they muſt be treated in the ſame manner as other plants from warm countries.

They may alſo be propagated by cuttings, which may be planted in any of the ſummer months, and plunged into a moderate hot-bed, obſerving to ſhade them from the ſun till they have taken root; after which they may be treated in the ſame manner as the ſeedling plants.

DWARF-TREES were formerly held in great eſtimation in gardens; but ſince the introduction of Eſpaliers, which have juſtly gained the preference, the Dwarf trees are much neglected.

The manner of propagating Dwarf-pears, which have been found to ſucceed the beſt of any Dwarfs, is by grafting them on a quince ſtock, about ſix inches above the ground; and when the bud is ſhot ſo far as to have four eyes, it muſt be ſtopped, to give riſe to lateral branches: for which purpoſe the uppermoſt eye ſhould always be left outwards.

Apple, Pear, Plum, and Cherry-trees, are thus formed into Dwarfs, but the ſummer and autumn pears are found to ſucceed beſt. The manner of planting Dwarf-trees, ſhould be at twenty-five feet diſtance, and the ground between ſown or planted for kitchen uſe, while the trees are young, only keeping at ſome diſtance from their roots; ſtakes alſo ſhould be fixed all round them, to which the branches may be nailed with liſt, and thereby trimmed in an horizontal direction, and by that means prevented from croſſing one another.

DYER'S BROOM, a ſpecies of the Broom. See BROOM.

DYER'S WEED, a ſpecies of the Baſtard-Rocket. See the article BASTARD-ROCKET.

E.

Hare's-EAR: See HARE'S-EAR.

EARTH, if good, ſhould be of a blackiſh colour, gravelly, fat, pliant, or eaſy to be digged; it ſhould be neither cold nor light: it ought to have no ill ſmell or taſte, and it ſhould be of the ſame quality; three or four feet deep for trees, which if they have not that depth, will languiſh and decay after they have been planted ſix years. Fruit-trees will thrive in a leſs depth, and they generally produce the moſt generous fruits when their roots ſpread near the ſurface of the earth.

Huſbandmen call that new Earth, which lying three or more feet deep, never ſerved to the nouriſhment of any plant; or Earth that has been a long time built upon, though it had formerly bore; Earth likewiſe of a ſandy, loamy nature, where cattle have been a long time fed, may be accounted ſuch, and is of excellent uſe for moſt ſorts of plants, eſpecially if it has been thrown up in heaps to grow richer.

EBONY, *Ebenus*, a genus of plants, of which there is but one ſpecies.

It grows naturally in Crete, and in ſome of the iſlands of the Archipelago, riſing with a ſhrubby ſtalk three or four feet high, which put out ſeveral ſide branches, decorated with hoary leaves at each joint; the branches are terminated by thick ſpikes of large purple flowers.

Culture of the EBONY.

This is propagated by ſeeds, which ſhould be ſown in the autumn: for thoſe which are ſown in the ſpring often fail; ſow them in pots, which in the winter muſt be placed under a frame, in ſpring the plants will come up. When they have acquired ſtrength enough to be removed, they ſhould be each planted into a ſeparate ſmall pot, and ſhaded till they have taken new root: then place them in a ſheltered ſituation, where they may remain till autumn, when they muſt be removed into ſhelter; for theſe plants will not live in the open air through winter, nor ſhould they be too tenderly treated; they ſucceed beſt when placed in an airy glaſs-caſe, where they will have more ſun and air than in a green-houſe.

During the winter ſeaſon, the plants muſt be ſparingly watered, but in ſummer they ſhould be often refreſhed.

EBULUS, a ſpecies of the Elder-tree. See the article Elder-tree.

ECHINATED-SEEDS, &c. are ſuch ſeeds, &c. of plants as are prickly and rough.

ECHINUS, a Bur, or the prickly bud or cover of the ſeed, or top of any plant.

EDGINGS, in gardening, the ſeries of ſmall but durable plants, ſet round the edges or borders of flower-beds, &c. The beſt and moſt durable of all plants for this uſe, is Box, which if well planted, and rightly managed, will continue in ſtrength and beauty for many years. The ſeaſons for planting this are the autumn, and very early in the ſpring; and the beſt ſpecies for this purpoſe is the Dwarf Dutch Box.

The Edgings of Box are now only planted on the ſides of borders next walls, and not, as was ſome time ſince the faſhion, all round borders of fruit-beds, in the middle of gardens, unleſs they have a gravel walk between them, in which caſe it ſerves to keep the earth of the borders from waſhing down on the walks in hard rains, and fouling the gravel. In the laſt age it was alſo a very common practice to plant borders, or Edgings of aromatic herbs, as Thyme, Savory, Hyſſop, Lavender, &c. but theſe are all apt to grow woody, and to be in part, or wholly deſtroyed in hard winters. Daiſies, Thrift, or Sea July-Flower, and Chamomile, are alſo uſed by ſome for this purpoſe, but they require yearly tranſplanting, and a great deal of care, elſe they grow out of form; and theſe are alſo ſubject to periſh in very hard ſeaſons.

EGG-PLANT, or MAD-APPLE, *Melongena*, a ſpecies of the Solanum, or Night-ſhade, and of which there are four different ſorts. 1. Egg-plant, with an oblong violet-coloured fruit. 2. Egg-plant, with a taper violet-coloured fruit. 3. Egg-plant, with an incurved fruit. 4. Egg-plant, with prickly leaves and fruit.

The firſt ſort grows naturally in Aſia, Africa, and America, where the fruit is commonly eaten by the inhabitants; it is cultivated in the gardens in Spain, as an eſculent fruit, by the title of Barenkeena; the Turks who alſo eat the fruit, call it Badinjan, the Italians Melonzana, and the inhabitants of the Britiſh iſlands in America, Brown John, or Brown Jolly.

It is an annual plant, with an herbaceous ſtalk, which becomes ligneous, and riſes from two to three feet high, ſending out many ſide-branches, decorated with oblong oval woolly leaves, whoſe borders are very ſlightly ſinuated. The flowers have one petal, which is cut at the brim into five ſegments, which expand in the form of a ſtar, but are a little reflexed; they are blue, and the ſummits, which are connected together in the boſom of the flower, are yellow; the flowers are ſucceeded by oval fleſhy fruit, about the ſize and ſhape of a ſwan's egg, of a dark purple on one ſide, and white on the other.

There are two varieties of the ſecond ſort, one with a purpliſh fruit, and the other white: but the latter is the moſt common in England.

This plant is two foot and a half high, of an irregular growth and ſpreading; the ſtem is round, thick, and hairy; the leaves are large, and they ſtand upon long foot-ſtalks: they are broad at the baſe, ſmaller at the point, and irregularly waved at their edges; they are hairy, and their colour a pale green. The flowers are not of any great beauty: they are moderately large, and of a duſky white, with more or leſs of purple; the fruit which follows theſe, is of the bigneſs of a hen's egg, white, ſoft, and juicy.

The third ſort differs from the two former in the ſhape of its leaves, which are deeply ſinuated on their borders. The fruit is oblong and incurved, of a yellowiſh colour, and larger at the end than in any other part.

The fourth ſort grows naturally in India: this differs greatly from either of the former; the ſtalk and leaves are armed with very ſtrong thorns; the leaves are larger, and deeply jagged on their ſides. The flowers are larger, and of a deeper blue colour; the fruit is long, taper, and white.

Culture of the Egg-plant.

They are propagated by ſeeds, which ſhould be ſown upon a moderate hot-bed early in March; when the plants come up, they muſt be tranſplanted in a ſecond hot-bed, about three or four inches aſunder, obſerving to water and ſhade them till they have taken root; after which, when the weather is warm, they muſt have a great ſhare of air, otherwiſe they will draw up very weak; and they ſhould alſo have frequent waterings.

About the end of May the plants will have grown ſo ſtrong, as to fill the frame: they muſt then be tranſplanted out into a rich ſpot of ground, at two feet diſtance, or into the borders of the pleaſure garden, at the ſame diſtance from other plants, obſerving to preſerve as much earth to the roots as poſſible, when you take them up, otherwiſe they are ſubject to miſcarry.

When the fruit appears, they muſt be watered more plentifully, not with a deluge at once, but by a moderate quantity often repeated; the beauty of theſe plants conſiſts in the bigneſs of their fruit: and this depends greatly upon the due degree and equal quantity of moiſture, and the choice of a good ſoil.

ELATERIUM, *Wild-Cucumber*. See the article *Wild*-Cucumber.

ELDER-TREE, *Sambucus*, a genus of plants, ranged by Linnæus among the *pentandria trigynia*, and of which there are ſix ſpecies. 1. Elder, with a branching tree-like ſtalk, and flowers growing in umbels; or common Elder, with black berries. 2. Elder, with wing-pointed leaves, flowers growing in umbels, and a ſhrubby branching ſtalk, commonly called Parſley-leaved Elder. 3. Elder, with oval compound bunches of flowers, and a tree-like ſtalk; or Red-berried Mountain Elder. 4. Elder, with a branching herbaceous ſtalk, and the ſmall leaves indented; or the Dwarf Elder, or Ebulus. 5. Elder, with an herbaceous branching ſtalk, and linear ſpear-ſhaped lobes, which are ſharply indented; or Dwarf Elder, with a cut leaf. 6. American Elder, with leaves almoſt winged.

The firſt ſort is the common Elder, which is too well known to need any deſcription.

The ſecond ſort is generally titled Parſley-leaved Elder, and by ſome ſuppoſed to be only a variety of the firſt ſpecies.

The third ſort grows naturally upon the mountains in Germany and Italy; this ſends up many ſhrubby ſtalks from the root, which riſe ten or twelve feeet high, which divide into many branches, covered with a brown bark; the leaves come out oppoſite: they are of a pale green colour, and pretty ſmooth. The flowers come out at the end of the ſhoots, in oval bunches, which are compoſed of ſeveral ſmaller; they are of an herbaceous white colour, and are ſucceeeded by berries, which are red when ripe.

The fourth and fifth ſorts grow naturally in many of the midland counties in England, where they frequently become troubleſome weeds.

The ſixth ſort is a native of Canada, and ſeveral other parts of North America, where it grows as large as our common Elder.

Culture of the Elder-Tree.

All theſe ſorts are propagated from cuttings planted any time from September to March; or by ſowing their ſeeds, which, if permitted to fall on the ground, will produce plants the ſucceeding ſummer; the plants are very hardy and will riſe in any ſoil or ſituation.

ELECAMPANE, a ſpecies of the Inula. This plant grows naturally in many parts of England, but it is cultivated in gardens for the roots, which are uſed in medicine.

Culture of the ELECAMPANE.

It is propagated by ſeeds, which ſhould be ſown in autumn ſoon after they are ripe, for if they are kept till the ſpring they ſeldom grow; but when they are permitted to ſcatter, the plants will come up the following ſpring without any care, and may be either tranſplanted the following autumn, or if they are deſigned to remain they ſhould be hoed out to the diſtance of ten inches or a foot each way, and conſtantly kept clean from weeds; theſe roots will be fit for uſe the ſecond year.

ELM-TREE, *Ulmus*, a genus of plants ranged by Linnæus among the *pentandria digynia*, and of which there are three ſpecies. 1. Elm-tree with leaves doubly ſawed, and unequal at the baſe, or the common Elm. 2. Elm-tree with leaves equally ſawed, and unequal at the baſe. 3. Elm-tree with leaves equally ſawed, and equal at the baſe.

The firſt ſpecies is a native of this and moſt other countries in Europe; the ſecond grows naturally in Virginia, and the third in Siberia.

Culture of the ELM-TREE.

It is propagated either by layers or ſuckers taken from the old roots; but as theſe are often taken up with very bad roots, and are therefore very ſubject to miſcarry, the method by layers is much the beſt, and is very eaſy to be practiſed, as a ſmall ſpace of ground would be ſufficient to furniſh nouriſhment for a number of ſtools or roots for laying, which would annually yield a great number.

The beſt ſoil for a nurſery of this kind, is a moderately light and dry hazel-loam, and the beſt ſeaſon for laying the branches is in autumn. When they have taken root, they ſhould be removed from the old plant, and ſet in rows in nurſery-beds, where, after four or five years, they will grow ſtrong enough to be tranſplanted into the places where they are deſigned to remain. In the planting them, great care muſt be taken not to bury their roots too deep, which, when the ſoil is moiſt and ſtiff, often deſtroys them. The common Elm ſeldom produces ſeeds in great perfection, but the witch Elm produces great quantities of good ones, from which ſome people raiſe nurſeries of the trees.

ENDIVE, a ſpecies of the Cichorium or Succory. This is an annual plant, and greatly cultivated in gardens, particularly a curled variety of it which is one of the principal ingredients in the ſallads of autumn and winter: for which purpoſe it is cultivated as long as the ſeaſon will permit.

Culture of the ENDIVE.

This plant is propagated by ſeeds, the firſt ſowing of which ſhould be in May, becauſe thoſe which are ſown earlier in the year, generally run up to ſeed before they have arrived to a proper ſize for blanching. The ſecond ſowing ſhould be about the middle of June, and the laſt in the middle of July. When the plants come up they muſt be kept clean from weeds, and duly watered; and when fit to be removed, the largeſt ſhould be drawn up from the ſeed-bed, leaving the ſmaller ones to get more ſtrength. Theſe ſhould be tranſplanted into an open ſpot of ground well dug and levelled, marked out in rows one foot aſunder, and the plants ſet ten inches diſtant in the rows. The earth ſhould be well cloſed to their roots and the plants well watered; the watering ſhould be repeated every other evening till they have taken root; after which they muſt be kept clean from weeds.

When the plants of the ſeed-bed have been thus thinned, they ſhould be well weeded and watered, and in about ten or fourteen days, there may be another thinning made of the remaining plants, which ſhould be tranſplanted in the ſame manner; and, in about the ſame diſtance of time, a third and laſt drawing of the plants may be made, which muſt be done after the ſame method. Thoſe plants which were firſt tranſplanted, will be fit to blanch by the end of July at fartheſt; and if they are properly managed, in three weeks or a month they will be ſufficiently blanched for uſe. If any of the plants ſhould put out flower-ſtems, let them be immediately pulled up, and carried away. The largeſt plants ſhould be tied up firſt to blanch, and, in a week after, thoſe of the next ſize. See the article BLANCHING.

In order to have a ſupply of theſe plants as long as the weather will permit, the plants of the laſt ſowing ſhould be tranſplanted under warm walls, pales, or hedges, to preſerve them from the froſt; and if the winter ſhould prove ſevere, they muſt be covered with ſome peaſe-haulm, or other ſimilar light covering, which ſhould be conſtantly taken away in mild weather. The tying up the plants for blanching is only to be underſtood of the two firſt ſowings, for the plants of the latter ſowings ſhould be taken up in a very dry day, with a large flat pointed dibble, and planted in the ſides of trenches, where they muſt laid very upright, ſideways towards the ſun, with the tops of the plants only out of the ground, ſo that haſty rains may run off, and the plants be kept dry, and ſecured from froſts. Theſe plants will be blanched fit for uſe in about three weeks or a month's time; after which they will not keep good long; for which reaſon freſh ones ſhould be planted in the trenches every week or fortnight at fartheſt, that there may be a conſtant ſupply for the table; and thoſe which were laſt tranſplanted out of the ſeed-beds ought to be kept till February or March, before they are planted to blanch.

In order to have a ſupply of good ſeeds for the next ſeaſon, look over thoſe borders where the laſt crop was tranſplanted before you put the plants into the trenches to blanch, and making choice of the largeſt, ſoundeſt, and beſt curled plants, let them be tranſplanted under a hedge or pale, at about eighteen inches diſtance in one row. If the ſeaſon is mild this ſhould be done about the beginning of March. When the flower-ſtems begin to advance, they ſhould be ſupported by a packthread, drawing them upright cloſe to the hedge or pale, that they may not be injured by high winds. Let them be kept clean from weeds, and about the beginning of July the ſeeds will begin to ripen.

ERINGO or SEA HOLLY, *Eryngium*, a genus of plants ranged by Linnæus among the *pentandria digynia*, and of which there are eight ſpecies. 1. Eringo with ſword-ſhaped, ſawed, ſpiny leaves, and the floral leaves ending in many points, commonly called Fever-weed. 2. Eringo with ſword-ſhaped, ſpiny and indented leaves, with the floral leaves undivided, commonly called Rattle-ſnake weed. 3. Eringo with the lower leaves plain, oval, and crenated, with flower heads upon footſtalks. 4. Eringo with oblong, lower, cut leaves, a ſtalk divided by pairs, and ſeſſile heads. 5. Eringo with the lower leaves folded, roundiſh, prickly, and flower heads upon footſtalks. 6. Eringo with oblong, heart-ſhaped, lower leavas, thoſe upon the ſtalks wing-pointed, and cylindrical heads. 7. Eringo with lower leaves, winged and tripartite, or the common Eringo. 8. Eringo with the lower leaves digitated and multified.

Theſe are all perennial plants. The firſt ſpecies is a native of the Weſt Indies. The ſecond of Virginia. The third grows naturally in Ruſſia, Poland, Auſtria, and Switzerland. The fourth kind is a native of Spain. The fifth grows in plenty on ſandy and gravelly ſhores in ſeveral parts of England, and other countries near the ſea. The ſixth ſpecies is a native of the mountains of Switzerland and Italy. The ſeventh of England, France, Germany and Italy; and the eighth ſort is a native of Syria.

Culture of the ERINGO.

The firſt ſpecies is propagated by ſeeds which ſhould be ſown on a hot-bed. When the plants are fit to be removed, they ſhould each be planted in a ſmall pot, and plunged in the bark-bed of the ſtove, and treated like other tender exotics.

The ſeeds of the ſecond and ſixth ſpecies muſt be ſown in pots and plunged into a moderate hot-bed, by which method the plants will come up much ſooner, than thoſe which are ſown in the full ground, and be much ſtronger before the winter. When fit to be removed, plant them each into a ſeparate ſmall pot, filled with light earth; and if they are plunged into a moderate hot-bed, it will forward their taking root, after which they muſt be gradually inured to the open air, into which they ſhould be removed about the end of May, and placed among other hardy exotics. When the plants have filled the pots with their roots, ſome of them may be ſhaken out, and planted in a warm border; the others may be put into larger pots, and in the autumn placed under a common frame, where they may be expoſed to the free air in mild weather. The following ſpring theſe may be turned out of the pots, and planted in a warm ſituation, where they will endure the cold of our ordinary winters extremely well; but in ſevere froſt they ſhould be covered with ſtraw or peaſe-haulm.

The third and eighth ſorts are likewiſe propagated by ſeeds, which ſhould be ſown in autumn in the places where the plants are to remain. They require no other culture than to thin them where they grow too cloſe and to keep them clean from weeds.

The fourth ſpecies is only cultivated in gardens for the ſake of variety, and the fifth and ſeventh ſpecies are never admitted there at all.

ERIOCEPHALUS, a genus of plants for which there is no Engliſh name, and only one ſpecies.

This plant riſes with a ſhrubby ſtalk from ſix to eight feet high, putting out many ſide branches. The leaves are hairy, they come out in cluſters, and are divided into three or five parts, which ſpread open like a hand. This ſhrub ſeldom produces its flowers in our climate; but as it retains its leaves all the year, it adds to the variety of exotics in the winter ſeaſon.

Culture of the ERIOCEPHALUS.

It is propagated by cuttings, which may be planted any time from May to the beginning of Auguſt; they ſhould be ſhaded from the ſun till they have taken root, after which they muſt be removed into the open air, and placed in a ſheltered ſituation, where they may remain till October, when they ſhould be removed into ſhelter, ſecure from the froſt. In the ſummer, when the plants are in the open air, if the weather prove very hot, they will require to be frequently refreſhed with water.

ESCULENT PLANTS are ſuch whoſe roots are uſed for food; as Beets, Carrots, Parſneps, Potatoes, &c.

ESPALIERS, in gardening, are rows of trees planted in the manner of hedges; either to ſurround a whole garden, or the ſeveral quarters of it. They are trained up flat, in a cloſe hedge, and ſerve not only for fruit bearing, but alſo to ſhelter the tenderer plants kept within the quarters. They are moſt commonly made of fruit trees trained up to a lattice of wood work, formed either out of aſh-poles or ſquare pieces of fir-wood, and their moſt uſeful office is the ſheltering, and at the ſame time hiding the quarters of a kitchen garden.

The trees now principally planted for Eſpaliers, are Apples and Pears, and ſome Plums. The Apples intended for Eſpaliers, ſhould be grafted on Crabſtocks for large gardens, and for ſmaller on Codlin-ſtocks. The trees for the ſame hedge in an Eſpalier, ſhould be all ſuch as are of the ſame age from the grafting, and produced from the ſame ſtocks, that ſo the hedge may be the more regular. The more quick growing, and ſpreading ones, muſt be planted at twenty-two feet aſunder, and thoſe of ſmaller growth, at ſixteen or eighteen; the walk between them in a large garden ſhould be ſixteen feet wide and if the Eſpaliers are intended to be carried up high it ſhould be more that both hedges may have the benefit of the ſun.

The beſt ſorts of Apples for Eſpaliers, are the golden Pippin, the Nonpareil, the Rennet Griſe, the Aromatic Pippin, the Holland Pippin, the French Pippin, Wheeler's Ruſſet and Pile's Ruſſet.

The Pears fitteſt for Eſpaliers, are the ſummer and autumn kind, for the winter ones never ſucceed well. Theſe, if deſigned for a ſtrong moiſt ſoil, ſhould be grafted on Quince-ſtocks; but if for a dry ſoil more free ſtocks ſhould be choſen. The diſtance for Pears grafted on free ſtocks ſhould be eighteen feet, and for the moſt vigorous ſhooters, it ought to be twenty-five feet. The beſt kind of Pears for this purpoſe, are the Jargonelle, the Blanquete, the *poire ſans peau*, the ſummer Boncretien, Humbden's Bergamot, the poire du prince, buerne du roy, the St. Michael, the le Marquis, the monſieur Jean, and the Creſſant.

The third year after the trees are planted, the frame-work of the Eſpalier ſhould be made. Till this time the young ſhoots ſhould only be trained to upright ſtakes, nailing them with liſt to different heights of theſe, as nearly as can be in an horizontal direction.

The beſt way of making the wood-work is of aſh-poles, which are not only cheap, but ſtrong and durable; the branches are all to be trained horizontally to theſe, and none ſhould be ſuffered to croſs one another, nor to come too near. In the trees which produce large fruit, no branches ought to be nearer to one another than eight inches, in the ſmaller fruited ones five or ſix inches is ſufficient.

The advantages of trees planted in Eſpaliers, over thoſe propagated as dwarfs, in the place of which theſe have been introduced, are many, and very great. They take up very little room in a garden, and are of no injury to the plants cultivated in the quarters; and the fruit is always more regularly ripened and better taſted, as the ſun and air can have every way free acceſs to it.

ETERNAL FLOWER. See the article *Eternal* FLOWER.

Indian EXACUM, a genus of plants ranged by Linnæus among the *tetrandria monogynia*.

This is a moſt beautiful little annual. The root is long, ſlender, white, and hung with a few fibres. The ſtalk is round, erect, and at the top divided in a regular and elegant manner into a number of branches, which by their ſubdiviſions form a large round head. The colour of the ſtalk is pale, often tinged with brown or red toward the bottom, and is lightly ſtriated. The leaves are placed in pairs; they are ſmall, of the lanceolate oval form. The flowers are ſmall, but they are innumerable; they are elegantly placed, being ſpread all over the broad head by the ſubdiviſions of the branches, and their colour is a bright gold yellow.

Culture of the EXACUM.

This plant in its natural ſtate is found in dry and half burnt ſoils; therefore the moſt proper compoſt for it is paſture-earth with ſome ſand, and wood-pile mould. A pot ſhould be filled with this early in the ſpring, and the ſeeds ſcattered over the ſurface, and covered about a quarter of an inch with the ſame mould, ſet the pot up to the rim in a bark-bed, and let the mould at times be watered. When the plants have a little ſtrength, let them be thinned by pulling up the worſt, till there are only four or five left in the pot, or according to its ſize, as many as it can ſupport. Theſe muſt be by degrees accuſtomed a little to the air; and about the latter end of May they muſt be taken into the ſtove in the pot the ſeeds were ſown in, for the plants ſhould never be removed. They require moderate waterings, and will flower, and ripen their ſeeds perfectly.

EXOTIC PLANTS, all ſuch as are natives of foreign countries.

EXPOSURE, in gardening, the ſituation of a garden wall, or the like with reſpect to the compaſs, as ſouth or eaſt. According to Mr. Miller, the beſt aſpect or Expoſure for walls in England, is to have one point to the eaſtward of the ſouth; by reaſon theſe will enjoy the benefit of the morning ſun, and be leſs expoſed to injuries from the weſt and ſouth-weſt winds, than walls directly facing the ſouth. The next beſt aſpect is due ſouth, and the next to that ſouth-eaſt, which is preferable to the ſouth-weſt for the reaſons before aſſigned. However, as there will for the moſt part, be ſouth-weſt and weſt walls in every garden, theſe may be planted with ſuch ſort of fruit as do not require ſo much heat to ripen them; and wherever there are north walls, they are only fit for baking Pears, and Plums, Morello Cherries for preſerving, or ſome duke Cherries, which may thus be continued longer in the ſeaſon.

F.

FARINA FŒCUNDANS, the impregnating meal, or duſt on the apices of flowers, which being dropped into the piſtil, fœcundates the rudiments of the ſeeds in the ovary, which otherwiſe would decay and come to nothing.

FASTIGIATE PEDUNCLES, &c. ſuch peduncles, &c. as are ſo proportioned that the flowers which they ſupport form an even ſurface.

FEBRUARY, the ſecond month in the year.

In the flower garden continue, throughout the whole ground, the care directed for the month of January. For fear of accident among the ſeedlings, ſow freſh quantities. The Polianthus, and the Auricula ſeed, will yet grow very well on common ground. Clean the borders, and break the top of the mould, to promote the ſhoots of the plants; but this muſt be done with the greateſt care. No perſon ſhould be entruſted to hoe the borders at this ſeaſon, but he who planted the roots in them.

When the ground is cleaned, and ſtirred at the ſurface, let a ſmall quantity of very rich mould be ſifted over the roots. Where Roſes, Honey-ſuckles, or other ſmall flowering ſhrubs, in borders are wanting, let them be brought in the beginning of this month. If the plantations of the fibrous rooted kinds have been omitted in autumn, or if the wetneſs of the ground has rendered it more proper to be delayed till this ſeaſon, bring now in the ſeveral kinds of golden rods; and after theſe plant Columbines, Sweet Williams, and the ſcarlet and other Lychnis's. If the autumn plantation has been made, look over the ground and ſee that all holds good. Where a root ſeems decayed, take it up and place another; and where any one only appears weak, take it back into the nurſery, and put a ſtronger one into the place. Look over the Box-edgings, and if there be any bad part not amended in autumn, or if any of what was planted at that time ſeem weak, take the pieces up and mend them. Cloſe the earth very well about the roots of what is new planted. The middle of this month is a proper time for ſowing the tender annuals upon hot-beds. About this time the Carnations, from which a ſhew of flowers is expected this ſeaſon, are to be potted. The Auricula plants will about the end of this month, ſhew their buds for flowering: ſtir the earth lightly, on the ſurface, in all the pots. See if any thing has miſſed, which was planted in autumn, or if there be any vacancy which was left unſupplied at that time. In ſuch places now plant the perennial Catch-flies, Fox-gloves and Gentianellas. Clean the gravel-walks and roll them hard. Let all the plants and trees be cleaned; let the dead leaves be picked, and all filth, whether from inſects, mouldineſs, or whatſoever kind be waſhed away.

In the ſeminary prepare borders for ſowing flowering plants in the open ground; let two or three pieces in different parts be dug up, and the mould thrown in ridges, eaſt and weſt, to receive the benefit of the air; whilſt this ſoil is mellowing, let another piece be dug up, for the immediate reception of layers of hardy trees; ſuch as were not ſufficiently rooted in autumn, may be taken off now; ſow ſeeds and fruits of hardy ſhrubs the beginning of this month; clear a piece of ground for planting evergreens: and about the middle of this month, if it be mild weather, get all the hardy kinds of trees and ſhrubs into the ground. Plant cuttings of Currants and Gooſeberry-buſhes, if not done in autumn. Dig the ground about ſuch trees as have ſtood ſome time in their place. Where the intended trees for this ſeaſon's tranſplanting are not in the ground, let the places be prepared, and a mild day, after froſt, choſen for that buſineſs. If it be now ſevere froſt, let the ground all about the cuttings of Gooſeberries and Currants, be covered with peaſe-ſtraw.

The green-houſe will now require great care; air and water, that have been withheld ſo long on account of the ſeverity of the weather, muſt now be admitted more freely; for if the air be mild, the middle of the days warm, and the nights not very ſharp, let this needful aſſiſtance be given the plants; the ſhooters muſt be kept back for the firſt day or two: and the next the glaſſes muſt be opened a little; the waterings are to be repeated occaſionally; let ſome mould ſuited to the nature of the ſeveral kinds of plants, be brought into the green-houſe; and two or three days after that, let the mould on the ſurface of the pots and tubs, be carefully ſtirred with a blunt trowel: and when it is well looſened to ſome little depth, let ſo much be taken off, and the place of it ſupplied with the freſh mould. Cleanlineſs is the next to be regarded; let ſuch plants as are tainted be removed out of the green-houſe, into ſome other place of ſhelter: then let all dead or decaying leaves be carefully picked off; and if foulneſſes of any kind, mouldineſs, or inſects, be found on any of the leaves or branches, let it be waſhed and wiped away; let the ſame care be obſerved in the ſtove: this is a good ſeaſon for producing new plants; the more delicate and tender kinds, intended for the ſtove and green-houſe, are to be raiſed in the bark-bed.

In the fruit-garden look over thoſe ſtocks which were budded the preceding ſummer. If the heads be cut off, ſee the ſap from the wound do not run upon the bud; thoſe not cut off before muſt be cut now. Go over the eſpaliers lately repaired, and ſee that every thing keep firm. Sow the ſtones of Plums and other hardy fruit, for raiſing ſtocks for the future ſervice of budding and grafting.

The planting of fruit-trees is a work of this ſeaſon, and no care is too much in the operation.

About the end of this month, if the ſeaſon be mild, you may graft pears. See that the fruit-trees newly planted have a right pruning.

In the kitchen-garden, about the beginning of this month, ſow a freſh piece of ground with Beans, and another with Peas. Sow a little freſh Cucumber-ſeed, and repeat the ſame once in ten days. Dig a good piece of ground for Carrots and Parſneps. About the middle of the month ſow a bed of Onions, and another of Leeks. Lay a ſmall piece level and fine for Cabbage Lettuce-ſeed. Make a ſmall hot-bed for Cauliflower-ſeed, and ſow Cos and Sileſia Lettuce-ſeed. About the end of this month, begin ſowing Cabbages and Savoys for winter. Look to the beds of the finer kinds of Lettuces; the plants will now be ready to remove. Dig three pieces of ground, and laying them perfectly level, on the one ſow Raddiſh-ſeed, on the other Spinach, and on the third Lettuce. Dig a piece of ground under a warm wall, and ſow young ſallading. Beets ſhould now be ſown for a large crop. Plant Rocombole, and all the onion kinds; with good care there is no ſeaſon wherein things grow more freely: but without this care no ſeaſon is ſo dangerous.

FELLWORT. See the article GENTIAN.

FENCES. In the warmer climates, where they have not occaſion for walls to ripen fruit, the gardens lie open, and are bounded by a water fence and an agreeable proſpect; or elſe they terminate in groves, adorned with fountains, walks, &c. which are more pleaſing than a dead wall; but in this and other colder countries, we are obliged to have walls to ripen and ſhelter our fruit: for the manner of building which, ſee the article WALL.

Where there are no walls, the common method, in this country, of fencing a good piece of ground, is by quick-hedges; for the method of which, ſee HEDGES.

FENNEL, *Fœniculum*. This is a biennial plant, and too well known to need a particular deſcription here.

Culture of the FENNEL.

This plant is propagated by ſeeds, which ſhould be procured from Italy, for thoſe ripened in England are very apt to degenerate. In February ſome of theſe ſhould be ſown for the firſt crop, on a light dry ſoil, and in a warm ſituation. The manner of ſowing theſe ſeeds is firſt to rake the bed very ſmooth, then draw a ſmall drill along it, and in this ſcatter them pretty thin; for the plants are not to ſtand nearer than ſix inches to one another; cover this with half an inch of earth: and at the diſtance of ſixteen inches, make another drill, and ſo on throughout the bed.

In about a month the plants will come up, they muſt then be cleared of weeds, and cut up to four inches diſtance; a month after this they muſt be thinned to ſix or ſeven inches diſtance; the ſtalks will now begin to ſwell to a large bulk juſt above the ground: this part muſt be earthed up in the manner of Celery, about a fortnight before it is uſed, which will make it eat very tender and criſp.

A ſecond crop ſhould be ſown three weeks after the firſt, and in the ſame manner till July, every three weeks or a month, a new crop ſhould be ſown, to keep a conſtant ſupply for the table.

The crops ſown in the hotter weather ſhould be watered and ſhaded from the great heats.

FENNEL-GIANT, a genus of plants, of which there are eight ſpecies. 1. Pliny's Female Fennel-giant. 2. Galbanum, bearing the Fennel-giant of Lobel. 3. Broad-leaved Shining Fennel-giant from Tangier. 4. Fennel-giant, with a broader leaf. 5. Eaſtern Fennel-giant. 6. Eaſtern Fennel-giant, with a ſpignel leaf, and yellow flower, called Laſerwort. 7. Fennel-giant, commonly called Libanotis. 8. Fennel-giant, with a narrow leaf.

The firſt ſpecies is very common in the Engliſh gardens, and if planted in a good ſoil, will grow to the height of ten or twelve feet.

The ſecond ſort does not grow quite ſo large as the firſt, but the ſtalks of this will riſe ſeven or eight feet high.

The third ſpecies is a native of Spain and Barbary, and riſes to the height of eight or ten feet.

The fourth ſort grows naturally in Sicily, and riſes to much the ſame height as the ſecond ſpecies.

The fifth and ſixth ſorts are natives of the Levant, and of much humbler growth than either of the former.

The ſeventh ſpecies grows naturally in Iſtria and Carniola, and riſes about three feet high.

The eighth ſort is a native of Spain, and grows to the height of eight, and ſometimes nine feet.

Culture of the FENNEL GIANT.

All theſe ſpecies are propagated by ſeeds, which ſhould be ſown in the autumn, for if they are kept out of the ground till the ſpring, they frequently fail, and thoſe which ſucceed remain a year in the ground, ſo that much time is loſt. The ſeeds ſhould be ſown in drills, by which method the ground may be eaſier kept clean; the drills muſt not be nearer than a foot, and the ſeeds may be ſcattered two or three inches aſunder in the drills.

When the plants come up if they ſhould be too cloſe together, they ſhould be thinned to allow them room to grow, for they will not be ſtrong enough to remove till they have had two years growth; then in the autumn when their leaves are decayed, the roots ſhould be taken up with great care, ſo as not to cut or injure the tap or downright root, and planted in the places where they are deſigned to remain, for after this tranſplanting they ſhould not be removed.

As theſe plants ſpread very wide, ſo they ſhould have each four or five feet room, nor ſhould they ſtand near to other plants, for their roots will rob whatever grows near them of its nouriſhment. They delight in a ſoft, loamy ſoil not too wet, and are very rarely injured by the hardeſt froſt.

Scorching FENNEL, or *Deadly* CARROT, *Thapſia*, a genus of plants ranged by Linnæus among the *pentandria digynia*, and of which there are ſix ſpecies. 1. Scorching Fennel, with indented lobes which are joined at their baſe. 2. Scorching Fennel with winged leaves, having very broad wing-pointed lobes, which are hairy on their under ſide, and running footſtalks. 3. Scorching Fennel with many-pointed lobes, which are narrowed at their baſe. 4. Scorching Fennel with many-pointed briſtly lobes. 5. Scorching Fennel with oval trifoliate leaves. 6. Scorching Fennel with many-pointed acute lobes, which are hairy on their under ſide, and have hairy footſtalks.

The firſt ſort grows naturally in Spain, Portugal, and the ſouth of France. It riſes with a ſpungy ſtalk about two feet high, dividing upward into two or three ſmall branches, each being terminated by a large umbel of yellow flowers.

The ſecond ſort grows naturally in Spain, particularly all over old Caſtile. The ſtalks riſe three or four feet high; they are large, jointed, and full of pith, and the flowers come out from the top of them in large yellow umbels.

The third ſort grows naturally in Italy and Spain. The ſtalks are about two feet high, and are terminated by umbels of ſmall yellow flowers.

The fourth ſort grows naturally in Apulia. The ſtalk riſes from two to three feet high; it is naked and branches into two or three ſtalks, each being terminated by a ſmall umbel of large yellow flowers.

The fifth ſort grows naturally in North-America. The ſtalk is ſingle and does not branch, it riſes near two feet high, and is terminated by a ſmall umbel of purple flowers.

The ſixth ſort grows naturally in Auſtria. The ſtalk riſes about two feet high, and is terminated by an umbel of yellow flowers.

Culture of the Scorching FENNEL.

Theſe plants are only propagated by ſeeds, which ſhould be ſown ſoon after they are ripe, in drills, in the places where they are deſigned to remain. Let the drills be at leaſt two feet and a half aſunder, and when the plants come up in the ſpring, they ſhould be carefully cleaned from weeds, and thinned where they grow too cloſe, ſo as to be left two or three inches aſunder. In the autumn following, they may be thinned ſo as to ſtand at the diſtance of eighteen inches apart; the plants which are taken up may be tranſplanted to another bed, if they are wanted.

They will afterwards require no other care but to keep them clean from weeds; and every ſpring juſt before the plants put out new leaves, to dig the ground between them, taking care not to injure their roots. They ſhould have a ſoft loamy ſoil.

FENNEL-FLOWER, See DEVIL-IN-A-BUSH.

FICOIDES, See the article FIG MARIGOLD.

FIDDLE WOOD, *Citharexylon*, a genus of plants of which there are two ſpecies. 1. The common Fiddle Wood of America. 2. Fiddle Wood with oblong, oval, entire leaves growing oppoſite, angular branches, and flowers growing in ſpikes.

The firſt ſort grows common in moſt of the iſlands of the Weſt-Indies, where it riſes to a great height, and becomes a very large timber tree, the wood of which is greatly eſteemed for buildings, being very durable.

The ſecond ſort is a native of the ſame iſlands with the firſt. This tree riſes with a ſtrong upright trunk to the height of ſixty feet, or more, ſending out many angular branches. The timber of this tree is alſo greatly eſteemed by the Americans, being very durable.

Culture of the FIDDLE WOOD.

The ſeeds of both theſe ſorts ſhould be ſown in ſmall pots early in the ſpring, and plunged into a hot-bed of tanners bark, and treated in the ſame manner as other exotic ſeeds which are brought from hot countries. If the ſeeds are freſh the plants will appear in five or ſix weeks, and in about one month more will be fit to tranſplant; when each ſhould be planted, in a ſmall pot, and plunged into the hot-bed again, obſerving to ſhade them till they have taken freſh root, after which they ſhould have a large ſhare of air in warm weather. In autumn the plants ſhould be removed into the bark-ſtove, where it will be proper to keep them the firſt winter, till they have obtained ſtrength, but afterward they may be kept in a dry ſtove in winter, and in the middle of ſummer they may be expoſed in the open air for two months, in a warm ſituation, with which management the plants will make better progreſs than when they are more tenderly treated.

If the cuttings of this plant are ſet in ſmall pots during the ſummer months, and plunged into a moderate hot-bed, they will take root, and may afterward be treated in the ſame manner as the ſeedling plants.

FIELD BASIL, *Clinopodium*; a genus of plants ranged by Linnæus among the *didynamia gymnoſpermia* and of which there are three ſpecies. 1. Field Baſil with roundiſh prickly heads, and briſtly bractæa or the common Field Baſil. 2. Field Baſil with leaves woolly on their under ſide, broad plain whorls, and ſpear-ſhaped bractæa. 3. Field Baſil with rough leaves, plain heads growing on the ſides of the ſtalks, which have foot-ſtalks and are radiated.

Theſe plants have perennial roots. The firſt ſpecies grows naturally in rocky places in the north part of Europe and America. The ſecond ſort is a native of the north parts of Europe, and the third ſpecies grows naturally in Carolina, Jamaica, and the ſouth of France.

Culture of the FIELD BASIL.

They are propagated by parting of the roots or ſowing the ſeeds in autumn, and require no other culture than being kept clean from weeds; the firſt and ſecond ſorts will grow in any ſoil or ſituation; but the third ſpecies ſhould be planted in pots, and in winter ſheltered under a frame, where the plants may have the benefit of the free air in mild weather, and be protected from froſt.

FIG TREE, *Ficus*, a genus of plants ranged by Linnæus among the *polygamia trioecia*, and of which there are the ſeven following ſpecies. 1. Fig Tree with hand-ſhaped leaves, or the common Fig Tree. 2. Fig Tree with roundiſh, heart-ſhaped entire leaves, commonly called Sycamore. 3. Fig Tree with entire heart-ſhaped leaves, ending in acute points. 4. Fig Tree with oval, obtuſe, intire leaves, and the lower part of the ſtalk putting out roots. 5. Fig Tree with ſpear-ſhaped leaves upon footſtalks; the footſtalks of the fruit growing in cluſters, and branches ſending out roots. 6. Fig Tree with oval, intire acute leaves; a tree like ſtalk and branching fruit. 7. Fig Tree with oval, acute intire leaves, and a creeping ſtalk.

Of the firſt ſpecies, which is the only one worth cultivating, and is a native of Aſia, and the ſouthern parts of Europe, there are great varieties, which have been obtained from ſeeds, and may be encreaſed annually.

Of theſe varieties, the following are obſerved to be moſt worthy of cultivation.

1. The brown, or cheſnut-coloured Iſchia Fig. It ripens in July, or Auguſt, and, if planted againſt a wall, two plentiful crops of fruit may be annually ripened.
2. The Black Genoa Fig, being a long fruit, the inſide of a bright red, and the fleſh very high flavoured, and ripening early in Auguſt.
3. The ſmall, white, early, Fig.
4. The large, white, Genoa Fig.
5. The Black Iſchia Fig, ripening in Auguſt.
6. The Malta Fig, being a ſmall, brown, fruit, which, if permitted to hang upon the trees, till the fruit is ſhrivelled, becomes a fine ſweetmeat.
7. The Murrey, or brown Naples Fig, ripening the latter end of Auguſt.
8. The green Iſchia Fig, ripening about the end of Auguſt.
9. The Madona Fig, commonly called here the Brunſwick, or Hanover Fig, ripening the end of Auguſt, or beginning of September.
10. The common Blue, or Purple Fig.
11. The brown Fig of Naples, ripening in September.
12. The Yellow Iſchia Fig.
13. The ſmall brown Iſchia Fig, which, together with the twelfth ſort, ripens in September.
14. The Gentile Fig, ripening very late.

Culture of the FIG TREE.

The common method has been to propagate theſe trees by ſuckers from the roots of the old ones, but they are much more ſucceſsfully raiſed from cuttings. The branches may be laid down in February, and by the ſame month in the following year, they will be fit to remove. This is alſo the proper ſeaſon to tranſplant them; and the beſt ſoil is ſuch as has a gravelly, chalky, or ſtony bottom, with a light ſurface; the tree indeed will ſeem to flouriſh more in a better ſoil, but in this poor one it will produce the fineſt and moſt plentiful fruit.

Fig Trees ſhould always be planted in a free open ſituation, not ſhaded by trees or buildings, and they never ripen their fruit well unleſs againſt a good ſouth-eaſt, or ſouth-weſt wall. They ſhould be planted at twenty feet diſtance, and the proper height for the wall they ſtand againſt, is about fourteen feet; the middle ſpaces between the trees may be planted with vines, to fill up the vacant part of the wall till the figs are grown, after which the vines ſhould be taken away.

In the ſummer, as the branches ſhoot, they muſt be trained horizontally againſt the walls, and no fore right ſhoots ſhould be ſuffered to come, but the buds of ſuch ſhould be rubbed off as faſt as they appear. At Michaelmas they ſhould be always pruned and nailed up. The great care to be had in pruning the old trees, is always to have a ſupply of young branches, for it is thoſe only which produce fruit. None of the ſhoots of the former autumn pruning muſt be ſhortened, for it is on the two year old wood, that the fruit is produced; the young branches muſt be always brought very cloſe to the wall, and this will ſcreen them from injuries by froſt, and much forward the early ripening of their fruit. The old branches ſhould never be laid in too thick; the diſtance ought to be at leaſt a foot between branch and branch, and as the young ones grow ſtrong, the old ones ſhould always be cut away. In April or the beginning of May, ſeveral of the leading ſhoots ſhould be ſtopped, which makes them throw out ſide-branches. In very hard weather the trees ſhould be covered with ſtraw, peaſe-haulm, or the like; which is not to be removed till the weather is milder, and then not all at once, but only by a little at a time. The higher the wood runs up the wall, uſually ſo much the better taſted is the fruit; and no trees ſucceed better in fruiting, than thoſe which are nailed up againſt chimneys, where beſide the height they have ſome advantage from the heat.

The Fig-tree does not love culture as moſt other fruit-trees do, it covets none at all, or very little; for it is a certain rule, that the more we dig about it, the leſs fruit we have from it, and it runs all into wood; it delights moſt in ſtony ground. The wood of the Fig-tree is cloſe ſet with buds, which yearly produce fruit; the ſap of this tree is too vigorous to want any help, or any enrichment, but rather is kept to bearing by laying ſand at the root, which helps to bring the fruit forward; the aſhes of lye, or buck-aſhes, are extremely good to lay at the roots of fig-trees, and have an excellent effect; they kill weeds, warm the earth, and ſet the tree to bearing plentifully.

As the other ſpecies of the Fig-tree do not produce fruit that is eatable, even in their reſpective native countries, they are preſerved only in the gardens of the curious, for the ſake of variety.

Indian FIG, or *Prickly* PEAR, *Opuntia*, a genus of plants of which there are nine ſpecies. 1. Indian Fig with oval compreſſed joints, and briſtly ſpines, or the common Indian Fig. 2. Indian Fig with oblong oval joints, and briſtly ſpines. 3. Indian Fig with oblong oval joints, and awl-ſhaped ſpines. 4. Indian Fig with oblong oval joints, and very long black ſpines. 5. Indian Fig with oblong oval thick joints, and unequal ſpines. 6. Indian Fig with oblong oval joints, almoſt without ſpines, commonly called the Cochineal Fig. 7. Indian Fig with compreſſed, cylindrical, bellied joints, and briſtly ſpines, called Pinpillow. 8. Stalky Indian Fig with large, narrow, compreſſed leaves, armed with long, narrow, white ſpines, growing in cluſters, called

Robinſon Cruſoe's Coat. 9. Indian Fig with compreſſed ſword-ſhaped joints, whoſe indentures turn backward.

Theſe plants are all natives of America, and, except the firſt ſort, are too tender to thrive in the open air of our climate, nor can any of them be preſerved through the winter here, unleſs they have artificial heat; for when they are placed in a green-houſe, they turn to a pale yellow colour, their branches ſhrink, and frequently rot on the firſt approach of warm weather in the ſpring.

Culture of the INDIAN FIG.

Theſe plants may all be propagated by cutting off their branches at the joints, during any of the ſummer months, which ſhould be laid in a warm dry place for a fortnight, that the wounded part may be healed over, otherwiſe they will rot. The ſoil in which theſe cuttings ſhould be planted muſt be compoſed after the following manner: one third of light freſh earth from a paſture, a third part ſea-ſand, and the other part ſhould be one half rotten tan, and the other half lime rubbiſh; theſe ſhould be well mixed, and laid in a heap three or four months before it is uſed, obſerving to turn it over at leaſt once a month, that the ſeveral parts may be well united; then it ſhould be paſſed through a rough ſcreen, in order to ſeparate the largeſt ſtones and clods, but by no means ſiſt it too fine.

Fill ſome pots with this compoſt, firſt laying ſome ſmall ſtones at the bottom to keep an open paſſage for the water to drain off, then plant one of the cuttings into each pot, and, except thoſe of the firſt ſort, plunge them into a moderate hot-bed, which will greatly facilitate their taking root; they ſhould alſo be now and then refreſhed with a little water, but great care muſt be taken not to give them too much, or too often, eſpecially before they are rooted.

When the plants begin to ſhoot, they muſt have a large ſhare of air, otherwiſe their ſhoots will draw up ſo weak, as not to be able to ſupport themſelves; and after they have taken ſtrong root, they ſhould be inured by degrees to the open air, and then removed into the ſtove, where they ſhould remain. They muſt be placed near the glaſſes, which ſhould always be opened in warm weather, ſo that they may have the advantage of a free air, and yet be protected from wet and cold.

During the ſummer ſeaſon theſe plants will require to be often refreſhed with water, but it muſt not be given them in large quantities, leſt it rot them; and in winter this ſhould be proportioned to the warmth of the ſtove, for if the air be kept very warm, they will require to be often refreſhed, otherwiſe their branches will ſhrink; but if the ſtove be kept in a moderate degree of warmth, they ſhould have but little, for moiſture at that ſeaſon will rot them very ſoon.

Theſe plants thrive beſt in a temperate heat, for if they are kept too warm in winter, it cauſes their ſhoots to be very tender, weak, and unſightly. Thoſe ſorts which are inclinable to grow upright, ſhould have their branches ſupported with ſtakes, otherwiſe their weight is ſo great as to break them down.

The firſt ſpecies may be treated in the above manner, only it does not require the heat of a ſtove, and will thrive extremely well through winter in a green-houſe.

FILAMENTS. See STAMINA.

FILBERT, a ſpecies of the Hazel or Nut-tree. See HAZEL.

FILM, a woody ſkin, ſeparating the ſeed in the pod of plants.

FIMBRICATED, a term applied to ſuch leaves of plants as are jagged on the edges, and have, as it were, a fringe around them; they are ſometimes called furbelowed leaves.

FINGRIGO, *Piſonia*, a genus of plants of which there is but one ſpecies in England; though the male and female plants differ ſo much as to be ſometimes taken for diſtinct ſpecies, by thoſe who have not ſeen them raiſed from the ſame ſeed. The male plants have ſtalks as thick as a man's arm, which riſe ten or twelve feet high; the bark is of a dark brown colour, and ſmooth; theſe ſend out many branches oppoſite, which are much ſtronger than thoſe of the female, and are decorated with oval ſtiff leaves, ſtanding oppoſite on ſhort footſtalks.

The ſtalks of the female plants are not ſo ſtrong as thoſe of the male, ſo require ſupport. Theſe riſe eighteen or twenty feet high, ſending out ſlender weak branches oppoſite, armed with ſhort ſtrong hooked ſpines, and decorated with ſmall oval leaves, ſtanding oppoſite on the larger branches, but on the ſmaller they are alternate, and have ſhort footſtalks.

Theſe plants are very common in the Savannas, and other low places in the iſland of Jamaica, as alſo in ſeveral other iſlands in the Weſt-Indies.

Culture of the FINGRIGO.

It is propagated by ſeeds, which ſhould be ſown in pots filled with light rich earth, and plunged into a hot-bed of tanners bark; and when the plants come up, they ſhould be tranſplanted into ſeparate pots, and plunged into the hot-bed again, where they may remain till Michaelmas, when they ſhould be removed into the ſtove, and plunged into the bark-bed, and treated in the manner of other tender plants from the ſame country.

FIR-TREE, *Abies*, a genus of plants of which there are five ſpecies. 1. The Silver, or Yew-leaved Fir. 2. The Spruce or Norway Fir, ſometimes called the Pitch-tree. 3. The ſmall coned American Spruce Fir. 4. The White Spruce Fir of North-America, called Newfoundland Spruce. 5. The American Hemlock Fir.

The firſt ſort grows naturally in many parts of Germany, but the fineſt trees of this ſort grow upon mount Olympus, which produce fruit of an extraordinary ſize. The Straſburgh turpentine is drawn from this tree. The wood is white and ſoft, and therefore not greatly eſteemed.

The ſecond ſort grows naturally in the low lands of Sweden, Norway, and Denmark, as alſo in many other parts of Europe. This is ſometimes titled Red Fir. The young branches of this Fir are uſed to make Spruce Beer in Germany, and from thence had the title of Spruce Fir.

The third ſort grows naturally in many parts of North America, and from thence have been brought to England.

The fourth ſort is alſo a native of North America, where the inhabitants make three ſorts of it, by the titles of Black, White, and Red Spruce. In England they are moſtly known by the title of Newfoundland Fir, becauſe many of their cones have been brought from thence; but the trees are found growing in moſt parts of North America.

The fifth ſort is alſo a native of the ſame country; and in the northern parts of America it is ſaid to grow to be a very large tree; but in England the branches ſpread wide every way, ſo that there is no appearance of the trees ever arriving to any conſiderable height.

There are ſeveral varieties of theſe trees, which have been raiſed from ſeeds which came from North America, particularly the Balm of Gilead Fir, which is ſo near reſembling the firſt ſpecies, as ſcarcely to be diſtinguiſhed from it.

Culture of the FIR-TREE.

All the ſorts of Fir are propagated by ſeeds; the time for ſowing them is about the middle of March, when the ſeaſon is mild, otherwiſe it had better be deferred till the end of that month, or the beginning of April. The ſeeds which are preſerved in their cones, are much better and will keep good longer than thoſe which are taken out; but the cones of the Silver and Balm of Gilead Firs generally fall to pieces in the autumn, ſoon after the ſeeds are ripe; ſo that if they are not carefully watched at that time, and gathered, the ſeeds will be loſt. The beſt method of opening the cones, is to ſpread them on a cloth a few hours before the fire, when they will open and emit their ſeeds.

Theſe ſeeds may be ſown in boxes, or pots filled with light freſh earth, covering them over about half an inch thick with the ſame earth; theſe ſhould be placed to an eaſt aſpect, where they may have the ſun till eleven in the morning; or if the ſeeds are ſown in a bed of earth, it ſhould be ſhaded with mats in the middle of the day; for when they are too much expoſed to the ſun, the ſurface of the ground will dry ſo faſt, eſpecially in hot ſeaſons, as to hinder the ſeeds from vegetating; and when the plants begin to appear, if they are not ſcreened from the ſun, many of them will be ſoon deſtroyed. The ſeeds muſt be carefully guarded againſt mice and birds, who are very fond of them, but particularly when the plants begin to appear; for as they thruſt up the cover of the ſeeds on their top, ſo the birds in pecking off theſe covers, will deſtroy the young plants; therefore the ſureſt method is to cover them with nets until the plants have thrown off their huſks, and expanded their ſeed-leaves, ſoon after which they will be out of danger.

The plants may remain in the places where the ſeeds were ſown till the following ſpring, provided they are not ſtinted by the ſtiffneſs of the ground, or any other cauſe; if ſo, they had better be carefully tranſplanted into new beds about the beginning of July; but this muſt be done with great care, obſerving to raiſe the plants with a trowel, ſo as to preſerve their roots as entire as poſſible, and to plant them again immediately, otherwiſe their tender fibres will ſoon become dry when expoſed to the air at this ſeaſon, and the plants thereby deſtroyed.

The diſtance for ſetting theſe young plants ſhould be four inches row from row, and about three inches aſunder in the rows; for as theſe beds muſt be arched over with hoops, that the plants may be ſhaded with mats in the middle of the day: ſo the cloſer they are planted, the leſs expence there will be in the covering; and as the plants are to remain in this bed no longer than the following year, there will be room enough for their growth during that time; theſe young plants muſt be carefully weeded, for if weeds are permitted to grow among them of any ſize, there will be great danger of drawing the plants out of the ground with the roots of the weeds. If the ſeaſon proves very dry, it will be of ſervice to the plants to ſprinkle them over with water once or twice a week during the hot time of the year: but this ſhould be done with caution, for too much wet will rot the ſhanks of theſe young plants, and deſtroy them.

Theſe plants are very rarely hurt by froſt, eſpecially thoſe in the full ground; but ſuch as are in pots or tubs, are in more danger, if they ſtand upon the ſurface of the ground: for the froſt will penetrate through the ſides, and thereby injure their roots; therefore theſe ſhould either be ſunk into the ground before winter, or ſome old tanners-bark, ſtraw or mulch, laid round the pots or tubs, to keep out the froſt.

After the young plants have remained in the ſeed-bed one year, they may be tranſplanted into beds the April following: but as theſe which were not tranſplanted in ſummer from the places where they were ſown, may ſtand two years in the beds when tranſplanted, ſo they ſhould be allowed more room than thoſe which were removed the preceding ſummer; therefore the rows may be from five to ſix inches diſtant, and the plants in the rows four inches aſunder, obſerving to treat them in the manner before directed. When they have grown two years in theſe beds, they may be tranſplanted into the nurſery, placing them in rows three feet diſtant, and a foot aſunder in the rows.

The beſt ſeaſon for removing them is in April, juſt before they begin to ſhoot: though they may, and often are tranſplanted in autumn with ſucceſs, but ſpring is preferable, eſpecially if there happens to be rain ſoon after, otherwiſe they will require watering once a week for about a month.

The ſmaller theſe trees are planted out where they are to remain, the greater will be their progreſs, and they will grow to a much larger ſize than thoſe that are removed when older; they are frequently planted out at the height of ſix or eight feet, at which ſize they will tranſplant better than moſt other evergreen trees; but if they are not ſupported, they will be in danger of being blown down by the wind. And if trees of ſuch ſizes are to be carried to a diſtant place, it will be expenſive; for unleſs they have large balls of earth to their roots, there will be great hazard of their growing; and theſe will require more water than young plants: ſo that upon the whole, planting of young trees is much preferable and leſs expenſive; therefore, where there are large plantations to be made, planting the trees very young is the moſt eligible; for the expence of cleaning theſe young plantations, will not be equal to that of ſtaking and ſecuring tall trees; and the difference of the firſt price, together with the carriage of the latter, will be very conſiderable; and the former will in a few years outgrow the latter.

In the choice of the plants, if they are to be purchaſed from a nurſery, they ſhould not be taken from good land to plant in a poor ſoil. The beſt method, where large plantations are to be made, is, if poſſible, to make nurſeries on the ſame ground, where the trees ſhould be raiſed from ſeeds; for as the diſtance will be ſmall to remove them, there will be little danger of their ſucceeding.

The timber of theſe trees is held in very little eſteem: therefore they are only valuable for their beauty, ſo that when they are planted for ornament, they ſhould be placed ſo far aſunder, as to admit the free air between them, otherwiſe the lower branches will decay, and render the trees unſightly. The great beauty of theſe trees conſiſt in their pyramidal form, and being furniſhed with lateral branches from about ſeven feet above the ſurface of the ground to their top; and theſe branches ſhould be well decorated with leaves: to obtain which, the trees ſhould not be planted nearer than eighteen or twenty feet; for when they are cloſer, the under branches ſoon drop their leaves and decay; and if theſe branches are taken off, the trees never put out new ones to ſupply their place.

In pruning off the under branches to the deſigned height, care muſt be taken not to cut off too many branches at the ſame time; one tier of branches is full enough to be diſplaced in a year; and if this is performed every other year, it will be ſufficient; and by this gradual method of pruning, the trees will not be much retarded in their growth; the beſt time for this operation is in the beginning of September.

The Silver Fir requires a deep ſtrong ſoil: for if it is planted in a light ground, it will make but little progreſs; and when it is planted in a ſhallow ground, as ſoon as the roots meet with obſtruction, the trees generally decay.

The common Spruce Fir will thrive beſt on the ſame land: but this will alſo do well on light ground, where the other will make little progreſs; for this reaſon, and being of longer duration, it is more generally planted in England than the former.

The third ſort will ſucceed beſt on a moiſt ſoil; for in light dry ground it makes but little progreſs: nor does it make a good appearance where the ſoil is not proper for its growth.

The American Spruce Fir delights in light moiſt ground, where the trees grow to a large ſize, and make a beautiful appearance; and if they are allowed room for their lower branches to ſpread and extend, they will be garniſhed with them almoſt to the ground, forming themſelves in a pyramidal figure.

The Hemlock Fir thrives beſt in a ſtrong loamy ſoil; thoſe which have been planted in light dry ground, have made but little progreſs, eſpecially upward, their branches taking a lateral poſition: ſo that unleſs the upper ſhoot is trained to a ſtake to direct its upright growth, the leading ſhoot will turn on one ſide and become flat.

Sometimes theſe trees are propagated from cuttings, which if properly planted will take root; but the plants ſo raiſed will never arrive to near the ſize of thoſe raiſed from ſeeds; they are alſo never inclined to an upright growth, ſending out many lateral branches, and becoming buſhy; therefore this method is only worthy imitation when it is to propagate a curious ſort, whoſe ſeeds cannot be obtained; nor ſhould the inarching of one ſort upon another be attempted ; for the trees ſo propagated will be of ſlow growth, and of ſhort duration.

Scotch FIR, a ſpecies of the Pine-tree. See the article Pine-tree.

Corn-FLAG. See Corn-*Flag*.

Sweet-ſmelling-FLAG, Acorus. See Acorus.

African FLEABANE, a genus of plants, of which there is but one known ſpecies.

This plant grows naturally at the Cape of Good Hope, it has a ſtrong woody ſtalk, which riſes to the height of twelve or fourteen feet, ſending out many ligneous branches at the top. The flowers are produced in ſpikes at the extremity of the ſhoots, which are of a dull purple colour, ſo make very little appearance ; the uſual time of its flowering is in autumn, and continues great part of the winter ; theſe plants retain their leaves all the year, and are therefore preſerved in the green-houſe, by the curious, for the ſake of variety.

Culture of the African Fleabane.

It may be propagated by cuttings, which ſhould be planted in May, in pots filled with light earth, and if they are plunged into a moderate hot-bed, it will promote their putting out roots. Theſe ſhould be ſhaded with mats, or covered with oiled paper, to ſkreen them from the ſun till they are rooted, which will be by the middle of July ; they ſhould then be each tranſplanted into a ſeparate pot, and placed in the ſhade till they have again taken root ; after which they may be placed with other hardy exotic plants in a ſheltered ſituation, where they may remain till the middle or end of October, when they ſhould be removed into the green-houſe, placing them where they may have a large ſhare of air in mild weather. Theſe plants require frequent waterings, and every year they muſt be ſhifted, and, as they increaſe in ſize, ſhould be put into larger pots.

FLESH, among botaniſts expreſſes all the ſubſtance of any fruit, between the outer rind and the ſtone ; or as much of the root of any plant as is eatable.

FLORET, *Floſculus*, a little tube expanded at the top uſually into five ſegments, and ſettling upon the embryo of a ſingle ſeed. See the article FLOWER.

A *Semi-Floret*, or *Half-Floret*, is tubulous at the baſe, and afterwards expanded in the form of a tongue. Theſe generally form the rays of compound flowers and are female.

FLORIST, a perſon ſkilled or converſant in flowers.

FLOSCULUS, in botany, a term uſed by Mr. Tournefort, and others, to expreſs ſuch flowers of plants, as are compoſed each of a great number of other ſmaller flowers placed cloſe to one another and encloſed in the ſame common cup : each of theſe ſmaller flowers conſiſt of one petal, which is ſlender and hollow, wider than the bottom, and uſually divided into many ſegments, which ſometimes are diſpoſed in the form of a ſtar. Each of theſe flowers ſtand upon an embryo, or young fruit, from which there grows a capilament which reaches beyond the flower. Theſe embryos are lodged in the bottom of the cup which is called by authors the thalamus of the flower ; and finally become ſeeds winged with down, or ſometimes without that, and ſometimes are armed with prickles. Of this ſort are the flowers of Thiſtles, Knapſeed, &c.

FLOWER. Though no part of plants is more known than their flowers, yet the definitions given by different authors of the word are extremely various, and are very neceſſary to be explained, in order to the underſtanding their works. Jungius defines it to be the moſt tender part of a plant, remarkable for its colour or form, or for both, and cohering with the fruit. Yet this author himſelf, acknowledges his definition to be too confined, as he very well knew there were ſeveral plants, whoſe flowers were produced remote from the fruit.

Mr. Ray ſays, the flower coheres for the moſt part with the rudiments of the fruit, but ſuch phraſeology is by no means to be admitted into definitions. Tournefort defines it to be a part of a plant very often remarkable for its peculiar colours, for the moſt part adhering to the young fruit, to which it ſeems to afford the firſt nouriſhment, in order to explicate its moſt tender parts, but this is a more indeterminate definition than the former, from its looſe mode of expreſſion. Pontedera defines it to be a part of a plant, unlike the reſt in form and nature. If the flower has a tube, it adheres to, or is fixed very near to the embryo, to the uſe of which it is ſubſervient ; but if the flower has no tube, then its baſe does not adhere to the embyro. This is ſcarce intelligible except to the expert botaniſt, and may be made to take in ſome parts of plants by no means to be underſtood by the name flowers. Juſſieu defines it to be compoſed of chives and a piſtillum, and to be of uſe in the generation of the plant : but this is too imperfect, as there are many plants in which the piſtillum is found at a great diſtance from the chives, and many flowers which have no piſtillum, and many others which have no chives.

Valliant, however, has been happier in his definition ; he ſays, that flowers are the organs which conſtitute the different ſexes of plants, which are ſometimes found naked and without any covering ; and that the petals, which moſt of them have, are no way eſſential to their uſe, but ſerve and are intended merely as covers for them ; but as theſe coats or coverings are the moſt conſpicuous, and moſt beautiful part of the flower, theſe are to be called flowers, be they of whatever form or ſtructure, or colour ; and whether they contain only the organs of both ſexes in each individual, or only of one, or even but of ſome part of one, provided that they are not of the ſame figure and colour with the leaves of the plant. The ſhorteſt and moſt expreſs definition, however, ſeems to be Martyn's ; which is, that flowers are the organs of generation of both ſexes, adhering to a common placenta, together with their common covering, or of either ſex ſeparately with its proper coverings, if it have any. The ſtructure of the different flowers are very various ; but Dr. Grew has obſerved, that the far greater number of them have the impalement, the foliation, and the attire of chives, &c. Mr. Ray accounts that every perfect flower has the petals, ſtamina or chives, apices or ſummits, and the ſtyle or piſtil, and ſuch as want any of theſe parts he calls imperfect flowers. The greater number of plants have a flower cup which is of a firmer ſtructure than their leaves, and ſerves for their ſupport. The parts of a flower are the ovary or piſtil, the corolla or flower-petals, the ſtamina or chives, the impalement or calyx, and the perianthium, pericarpium, and fruit. See the articles PISTIL, COROLLA, STAMINA, &c.

According to the number of petals or flower-leaves, flowers are called monopetalous or one-leafed, dipetalous or two-leaved, tripetalous or three-leaved, &c. Flowers are again diſtinguiſhed into male, female, and hermaphrodite : the male flowers are thoſe containing ſtamina, without any piſtil or fruit, commonly called ſtamineous flowers. The female flowers are ſuch as contain the piſtil, which is ſucceeded by fruit ; theſe are called fruitful or knitting flowers. The hermaphrodite are thoſe which contain the organs of both ſexes, *viz.* ſtamina and piſtils, and theſe are by far the moſt numerous. From the different figures and diſpoſition of the flower-leaves of plants, Mr. Tournefort has eſtabliſhed a ſyſtem of botany ; whereas that of Linnæus is chiefly founded on the number and diſpoſition of the ſtamina. See Botany, &c.

Double FLOWERS. This great improvement is to be attempted, in perennials, at the period of forming the bud : and in the ſame manner all doubling of flowers is firſt to be undertaken, at the time when thoſe flowers are about to be formed, from which the ſeed is to be ſaved for the new progeny.

Every floriſt knows the advantage of changing ſeeds with ſome friend on whoſe integrity he can rely. When the plants raiſed from theſe ſeeds have obtained about a third part of their bigneſs, by all poſſible means promote their free growth, for this is the period at which the buds of flowers take their final form. Clear away the ſurface of the mould between the plants to an inch depth or more, if that can be done without impairing the roots, and in its place ſpread ſome perfectly freſh and rich garden-mould, or ſome of the compoſt appropriated to the plant. On this give a gentle watering, which muſt be repeated afterwards daily in ſmall quantities. Let only a few flowers ripen upon each of theſe plants; and let not the root exhauſt itſelf by opening more than are intended to be ſet for ſeeds; and as the ſeed which follows the firſt flowers is the beſt, let theſe alone ſtand for it: if the plant is of the many flowered kind, when as many are opened as are intended to be ſuffered to remain, let the reſt be taken off in the bud. The ſtalks ſhould be tyed up; and the earth cleared to a good diſtance round theſe plants, and often broke with a hoe; and watered.

The growth of the ſeed muſt be well watched, and let it remain no longer on the plant than till of the full ſize, and a little hardened; then ſpread it on a ſhelf or table in an airy place; and when it is well dryed in the pods, ſeparate it, and dry it again looſe. Thus hardened, tye it up in bags, and reſerve it till the ſeaſon of ſowing. Let there be a large quantity ſaved in this manner; and if any imperfect ſeeds appear among them, let them be thrown away.

For the ſowing of theſe ſeeds chuſe a piece of ground in that part of the ſeminary which is open to the ſouth-eaſt, has a gentle aſcent, and through which the air, from the warm quarters, blows freely. Let there be no ſhade of building, or drip of trees, no large plants near, nor any thing to take the nouriſhment from the ſeedlings. Dig out the mould half a ſpade deep. Bring in ſome ſoil from a heap of compoſt ſuited to the nature of the plant, and raiſe a bed of it a full ſpade depth or ſomething more; and let this be carefully laid in a ſloping form; the back or higheſt part of the bed being to the north-weſt, and the ſlope to the expoſure. One inch in ſeven feet is about the proper meaſure, ſo that in a bed of twenty-one feet, which is a convenient length, there will be a deſcent of three inches. The whole piece being thus made into one broad bed, is to be divided into ſeveral, by alleys running up the length of it. Theſe ſhould be opened at five feet diſtance, and be juſt broad enough to give room for walking up and down, to obſerve the condition of the plants, and perform the neceſſary operations.

Upon theſe beds let the ſeeds be ſown very thinly, and ſift a little mould over them: a ſtraw's breadth is in moſt caſes ſufficient: but this muſt be according to the nature of the plants. When the ſeeds are covered, let a ſecond parcel be ſcattered upon the ſurface, and left uncovered: this ſhould be a ſmaller quantity than the firſt; and both together ſhould not be more than half as much as what is commonly uſed for an equal ſpace of ground. On the third day after the ſeeds are ſown give the beds a gentle watering, and let this be repeated every third day, except when ſhowers render it unneceſſary; and if violent rains ſhould happen the beds muſt be defended by a mat hung over them at ſome diſtance: this may be done by faſtening one end to a ſtrong frame of conſiderable height at the back of each bed, and drawing the mat to the ground at the foot: ſupporting it in the midway in three or four places by ſtakes. Something of this kind muſt always be in readineſs for uſe: it is never wanted except in caſe of ſevere ſhowers, which, if the bed is left expoſed to them, whether it is while the ſeed is ſhooting, or when the young plants come up, will do them infinite damage, the progreſs of the growth will be interrupted in them all, and many waſhed out of the ground; on the contrary, gentle ſhowers will refreſh them, and be very beneficial.

When the plants appear, obſerve if they riſe any where ſo cloſe as to hurt one another. If that be the caſe they muſt be thinned, and thoſe which are taken up planted in another bed, away from theſe. Let no weeds riſe near the plants, and be careful that they are watered conſtantly every afternoon, this muſt be done with a fine noſed-pot which has no cracks or flaws: and the water ſhould fall from it in the manner of a very gentle ſhower.

When the young plants have acquired ſome ſtrength in the ſeed-bed, let a new ſet of beds be prepared for them, of twice the bigneſs of the firſt. The ground for this purpoſe muſt be choſen in a like part of the ſeminary, but a little more open to the eaſt, and the ground dug away a full ſpade's depth. Strew ſome chipings of ſtone over the bottom, and beat them down flat, but lightly, with the back of a ſpade. Let the beds be made, with a proper compoſt, a foot and a half deep; and, inſtead of a ſlope, they muſt be of a rounded form; the beſt way is to pare away the ſides when the bottom is cleared, that the head of the work may be rounding like a gravel walk in a garden; then the chipings of ſtone are to be ſpread equally over that ſurface, and after this the compoſt is to be ſpread regularly, and the whole bed made a little rounded on the top. Then divide it by lines lengthways and acroſs, and theſe, according to the ſize of the plants, farther aſunder or nearer, but they ſhould be at leaſt thirteen inches diſtant, that there may be room to clear between them. In the ſpots where the lines croſs each other open holes. The moſt proper time for removing the plants is in the evening of a cloudy day, when the wind is in the ſouth or nearly ſo, and as all cannot be done in one evening, if the ſeaſon varies the work muſt be ſuſpended. In taking up the plants be very careful not to injure their roots. The ſecond beds ſhould be as near as poſſible to the firſt, that the fibres may not ſuffer by the air in carrying from one to the other, and no more of the old mould ſhould be taken up with them, than hangs juſt about the head of the root. Trim off the extremities of the fibres before the plant is ſet in its new place; fix it upright, and cloſe the mould carefully round it. When they are planted give them a gentle watering, and let them be open to the night air: but an hour after ſun-riſe, draw a mat or a canvas at a diſtance over them, to ſhade them from the ſun; and let this remain, till the time of watering them again in the evening; this care, muſt be continued till they are perfectly rooted, and after that they are to be left to take their remaining ſummer's growth without any farther aſſiſtance than weeding, breaking the ground carefully at times between them, and watering them according to the weather.

Toward the latter end of September they muſt have one refreſhment; and in the ſucceeding ſpring and ſummer two more. The compoſts for theſe ſervices muſt all be of the ſame general nature, only made to vary in ſome degree from one another, and the longer they lie to mellow the better, therefore they may be now prepared in the following manner: Let a quantity of compoſt be taken from ſome heap of a proper quality, though different in the ingredients from that uſed for making the laſt bed. Divide this into three parcels, and ſet a ſtick with a figure on it upright in each, in order to know which is which. With the firſt parcel mix fine river mud in the proportion of one half, and mark it number *one*. With the ſecond parcel mix one third part of wood-pile earth with the compoſt, and mark it number *two*. With the third parcel mix it with one fourth part of old cow-dung; work it well together, and mark it number *three*.

This ſhould be done early in the ſummer, and toward the end of September let the ſurface of the beds be pared away, or drawn off with a hoe to the depth of one inch, obſerving to work tenderly juſt about the ſtems of the plants. In the place of this bring in as much of the heap numbered *one* as will raiſe the bed half an inch higher than it was, and after this gather up a ſmall quantity round the ſtem of each particular plant, which will be thus about two inches deep round the ſtems of the plants, and an inch and a half every where elſe. This will by the additional thickneſs defend the roots againſt the froſt, and ſerve in the place of a tranſplantation, by giving a new ſoil about the upper roots, while the plants are kept from any check by the lower, which remain unremoved.

In the beginning of the ſpring, when the plants are about to make their firſt effort, toward the ſhoot for flowering, take off an inch depth or ſomewhat more of the whole ſurface of the bed; and in the ſame careful manner avoid injuring their roots. This will take off all the compoſt laſt laid on, for it will be by this time ſhrunk within that compaſs. In the place of this ſpread on as much from the heap number *two* as will raiſe the bed half an inch above the former level, and from time to time as the ſpring advances, water the ground.

Laſtly, when the buds for flowering are ſeen upon the plants, take off the ſurface once more, and fill up the place of it from the heap number *three.* After this the ſurface muſt be broke with a hoe lightly once a week, and every morning the plants muſt be thoroughly watered, for that is the time when they draw nouriſhment moſt briſkly, and again in the evening. But in all this watering, regard muſt be had to the temper of the ground, it muſt not be over-wetted, but juſt as much water given as it will receive, retaining the proper condition for the paſſage, and ſubſiſtence of the roots.

In this manner they will be brought to flower under every advantage nature takes in the enlarging and doubling of flowers, but notwithſtanding all this care, there will be ſome ſingle, and ſome bad amongſt them. The latter muſt be taken up, and the former muſt have every encouragement given them for the following year.

Let the double flowers be marked for ſeed, and this method entirely followed in raiſing the plants, when the ſecond offspring will ſhew the full ſucceſs of this practice.

FLOWER GENTLE, Amaranth. See Amaranth.

FLOWER of *an hour*, or Venice Mallow, a ſpecies of the Hibiſcus. See the article Hibiscus.

FLOWER-*de-Luce*, a ſpecies of Iris. See Iris.

FLOWER-FENCE. See Barbadoes Flower-Fence.

Blood FLOWER. See African Tulip.

Cuckow FLOWER. See Ladies Smock.

Eternal FLOWER, *or Auſtrian Sneeſewort, Xeranthemum*, a genus of plants ranged by Linnæus among the *ſyngeneſia polygamia ſuperflua.* There are ten ſpecies of this genus, of which five only are cultivated in gardens. 1. Eternal Flower with ſpear-ſhaped, ſpreading leaves, commonly called Ptamica. 2. Eternal Flower with ſpear-ſhaped leaves, and almoſt naked branches, bearing one flower. 3. Eternal Flower with ſhrubby, trailing ſtalks, and downy recurved leaves. 4. Eternal Flower with ſhrubby trailing ſtalks, and hairy ciliated leaves. 5. Eternal Flower with branches terminated by one imbricated flower, and obſolete leaves.

The firſt ſpecies is a native of Auſtria, Italy, and Switzerland, and the reſt are ſhrubby plants, and natives of Africa.

Culture of the Eternal Flower.

Of the firſt ſpecies there are two varieties, which are propagated by ſeeds, ſown early, either in ſpring or autumn, on a border of light earth. When the plants are about two inches high, they ſhould be tranſplanted into another border, under a warm pale, wall, or hedge, at about four or five inches diſtance one from another, or into the borders of the flower garden.

The other ſpecies do not ripen their ſeeds in England, and are therefore propagated by cuttings, which if planted on a bed of light earth during any of the ſummer months, and ſhaded from the ſun will put out roots, after which the plants muſt be taken up, and planted each into a ſeparate ſmall pot, filled with light earth, and placed in a ſhady ſituation till they have taken freſh root, then remove them to a ſheltered place, where they may remain till autumn, at which time they ſhould be put under a hot-bed frame, taking care to let them have plenty of freſh air in mild weather. In ſummer the plants muſt be placed abroad in a ſheltered ſituation, with other hardy exotics, taking care to water them in dry weather.

Everlaſting FLOWER, or GLOBE AMARANTH, *Gomphrena,* a genus of plants ranged by Linnæus among the *pentandria digynia,* and of which there are ten ſpecies. 1. Everlaſting Flower with an erect ſtalk, oval ſpear-ſhaped leaves, ſingle heads and footſtalks, having two leaves. 2. Everlaſting Flower with an erect ſtalk and an uninterrupted ſpike of flowers. 3. Everlaſting Flower with ſpear-ſhaped leaves, two leaves to the heads, and each floret with its proper cup. 4. Everlaſting Flower with obtuſe, fleſhy leaves, and oblong heads, terminating the ſtalks. 5. Everlaſting Flower with a climbing ſtalk, oval ſpear-ſhaped leaves, very long naked footſtalks, and an uninterrupted ſpike. 6. Everlaſting Flower with an erect ſtalk, ſpear-ſhaped leaves, and heads on the ſides of the ſtalks, ſitting cloſe. 7. Everlaſting Flower with a creeping ſtalk, round heads, ſitting cloſe to the ſtalks, and oval ſpear-ſhaped leaves. 8. Everlaſting Flower with a creeping ſtalk, divided by pairs, hairy ſpear ſhaped leaves and heads of flowers, ſitting cloſe to the ſides of the ſtalks. 9. Everlaſting Flower with a trailing ſtalk, the under leaves ſpear-ſhaped, the upper round, and looſe heads terminating the ſtalks. 10. Everlaſting Flower, with bifid, oppoſite foot-ſtalks, having three heads, the middle one ſitting cloſe to the ſtalk.

The firſt ſpecies is a native of the Indies, and an annual plant: there are two varieties of it: one with a large head of flowers, of a fine bright purple, the other with a head of a white or ſilver colour; theſe are the two ſorts commonly cultivated: for the other ſpecies being plants of no great beauty, are preſerved only in botanic gardens for the ſake of variety.

Culture of the Everlaſting-Flower.

Theſe varieties are propagated by ſeeds, which ſhould be ſown on a hot-bed in the beginning of March; when the plants are come up about half an inch high, they ſhould be tranſplanted on a freſh hot bed, at about four inches diſtance, obſerving to ſhade them till they have taken root: then they ſhould have freſh air admitted to them every day, in proportion to the warmth of the ſeaſon, and let them be gently refreſhed with water.

In about a month's time a freſh hot-bed muſt be prepared, into which a ſufficient number of pots muſt be plunged, filled with light rich earth; and when the bed is in a proper temperature of heat, let the plants be carefully taken up, with balls of earth to their roots, and each planted into one of theſe pots, obſerving to ſhade them till they have taken freſh root, and afterwards they may be treated as other tender exotic plants.

When the plants have filled theſe pots with their roots, they ſhould be taken out, and the roots on the outſide of the ball of earth, carefully pared off; then they ſhould be put into pots of a larger ſize. In July the plants ſhould be gradually inured to the open air, into which they may be removed about the middle of the month, and intermixed with other annual plants, to adorn the pleaſure garden, where they will flower from the latter end of September, till the froſts nip them; and being gathered in their prime, they will retain their beauty a long time, and ſerve in lieu of artificial flowers, for ornament.

Four-o'clock-FLOWER. See Marvel of Peru.

Fennel FLOWER, or DEVIL-IN-A-BUSH. See the article Devil-in-a-Bush.

Globe-FLOWER. See *Globe*-Ranunculus.

Honey-FLOWER, *Melianthus,* a genus of plants, ranged by Linnæus among the *didynamia polypetula,* and of which there are only two ſpecies. 1. Honey-Flower, with ſingle ſtipulæ, growing cloſe to the foot-ſtalk. 2. Honey-Flower, with two diſtinct ſtipulæ.

Theſe plants grow naturally at the Cape of Good Hope. The firſt ſort has a perennial root, which ſpreads much in light ground, from which ariſe many hollow ſoft ſtalks, ſix or ſeven feet high, decorated with large winged leaves.

The flowers are produced in long ſpikes, which ariſe from the top of the ſtalks, and are of a chocolate colour.

The ſecond ſort riſes with round, ſoft, ligneous ſtalks, five or ſix feet high, which ſend out two or three branches from their ſides. The leaves are like thoſe of the former ſort: their colour is a deep green on the upper ſide, and whitiſh underneath; the flowers come out from the ſides of the ſtalks in looſe hanging bunches, each ſuſtaining ſix or eight flowers, which are ſmaller than thoſe of the firſt ſort; the lower part of the petals are green: the upper part of a ſaffron colour; and on the outſide, in the ſwelling part of the petals, is a bluſh of fine red.

Culture of the Honey-FLOWER.

The firſt ſpecies is propagated by taking off its ſuckers or ſide-ſhoots, at any time from March to September, and planting them in a dry ſoil and a warm ſituation. It may alſo be propagated by planting cuttings during any of the ſummer months, which if watered and ſhaded, will take root very well, and may afterwards be tranſplanted where they are deſigned to remain.

Theſe plants ſhould be covered with mats or reeds in froſty weather, to prevent their tops being killed by the cold.

Paſque-FLOWER, *Pulſetilla*, a genus of plants, ranged by Linnæus among the *polyandria pologynia*, and of which there are four ſpecies. 1. Paſque-Flower, with decompounded winged leaves, and a nodding flower, having an erect rim. 2. Paſque-Flower, with decompounded winged leaves, and a pendulous flower, whoſe border is reflexed. 3. Paſque-Flower, with ſimple winged leaves, whoſe wings have lobes, and an erect flower. 4. Paſque-Flower, with hand-ſhaped leaves, having many points, and an erect ſpreading flower.

The firſt of theſe plants is common in divers parts of England, eſpecially on Gogmagog hills near Cambridge, where it covers whole ſpots of ground.

The root is long and thick, black on the ſurface, ſplit into many heads, and tufted on the crown of each; bitter to the taſte and acrid. The leaves are of a pale hoary green, and are ſupported on long weak foot-ſtalks, naturally of a deep red toward the ground, and paler upwards; each leaf is divided and ſubdivided in the pinnated manner: and the ſegments are ſmall and narrow. The flower-ſtalks riſe among theſe, two or more from every head of the root: ſo that when the plant is carefully managed, it is not uncommon to ſee a cluſter of eight or ten burſting out in their full glory together; there are no leaves upon this ſtalk, except the involucrum of the flower placed upon its top can be called by that name; its colour is purple at the baſe, of a whitiſh green upwards, and it is hollow, light, and hairy; this ſhields the baſe of the flower, which riſes in its hollow boſom from the ſummit of the ſtalk; its ſize is equal to that of the larger Single Anemonies, its colour a moſt elegant violet purple, ſhining with a peculiar ſmoothneſs and delicacy on the inſide, while the whole outer part or bark, is hairy.

The ſecond ſpecies grows naturally in the meadows in Germany: it has ſhorter leaves than the firſt; the ſtalks do not riſe ſo high, nor the flowers expand ſo wide; their colour is a deep purple.

The third ſpecies grows naturally on the Alps and Helvetian mountains, and has a perennial root. The leaves are ſimply winged; the ſtalk riſes near a foot high, is naked almoſt to the top, where comes out a neat hairy involucrum, and above that one yellow flower.

The fourth ſpecies is a native of Siberia; it has a thick fleſhy root, which ſends out many ſtrong fibres. The leaves are hand-ſhaped, downy, and cut into ſeveral ſegments. The ſtalk riſes nine or ten inches high, having a hairy involucrum a conſiderable diſtance below the flower; it is terminated by one flower, which is large, ſpreading, and of a whitiſh yellow.

Culture of the Paſque-FLOWER.

Theſe plants may be propagated by ſeeds, which ſhould be ſown in boxes or pots filled with very light ſandy earth, obſerving not to cover the ſeeds too deep with mould, which will prevent their riſing: for they require no more than juſt to be covered; theſe boxes ſhould be placed where they may have the morning ſun till ten o'clock, but muſt be ſcreened from it in the heat of the day: and if the ſeaſon proves dry, the earth ſhould be often refreſhed with water. The beſt time for ſowing theſe ſeeds is in July, ſoon after they are ripe; for if they are kept till ſpring, they ſeldom grow.

The boxes or pots, in which the ſeeds are ſown, ſhould remain in this ſhady ſituation till the beginning of October, when they ſhould be moved where they may enjoy the full ſun during the winter ſeaſon. About the beginning of March the plants will appear, at which time the boxes ſhould be again removed, where they may have only the forenoon ſun; for if they are too much expoſed to the heat, the young plants will die; they ſhould alſo be refreſhed with water in dry weather, which will greatly promote their growth; great care muſt be taken to keep them clean from weeds, which if ſuffered to grow, would in a ſhort time deſtroy the plants.

When the leaves of theſe plants are entirely decayed, which is commonly in July, the roots ſhould be taken up, which being nearly of the colour of the ground, will be difficult to find while ſmall; therefore the earth ſhould be paſſed through a fine wire ſieve; but notwithſtanding all poſſible care taken, there will be many ſmall roots left, ſo that the earth ſhould either be put into the boxes again, or ſpread upon a bed of light earth, to ſee what plants will ariſe out of it the ſucceeding year.

The roots which are taken up ſhould be immediately planted again in beds of freſh loamy earth, about three or four inches aſunder, covering them about three inches with the ſame earth. The ſpring following moſt of theſe plants will produce flowers, which will increaſe in ſize as the roots grow larger; theſe plants thrive beſt in a loamy ſoil: for in very light dry ground they are apt to decay in ſummer.

Satin FLOWER, MOONWORT, or HONESTY, *Lunaria*, a genus of plants, ranged by Linnæus among the *tetradynamia ſiliculoſa*, and of which there are two ſpecies. 1. Satin Flower, with oblong pots, commonly called Honeſty, or White Satin. 2. Satin Flower, with roundiſh pods.

The firſt ſpecies is a native of the northern parts of Europe, and is a perennial plant, and the ſecond ſort grows naturally in Germany.

Culture of the Satin FLOWER.

Both theſe ſpecies are propagated by ſeeds, which ſhould be ſown in the autumn. The plants will grow in almoſt any ſoil, but ſucceed beſt in a ſhady ſituation, and require no other culture but to be kept clear from weeds. If the ſeeds are permitted to ſcatter, the plants will riſe without any further care.

Star FLOWER, or STAR OF BETHLEHEM, *Ornithogalum*, a genus of plants, ranged by Linnæus among the *hexandria monogynia*, and of which there are thirteen ſpecies. 1. Star-Flower, with a very long ſpike of flowers, ſpear-ſhaped filaments, and foot-ſtalks to the flowers, equal and ſpreading, and thoſe of the fruit approaching to the ſtalk; or Star-Flower, with whitiſh green flowers. 2. Star-Flower, with a conical ſpike, having numerous flowers riſing above each other. 3. Star-Flower, with the longeſt ſpike, and ſpear-ſhaped leaves. 4. Star-Flower, with a very long ſpike, the foot-ſtalks of the flowers alternately ſhorter, and the outer petals narrow. 5. Star-Flower, with fruitful hanging flowers, and a bell-ſhaped nectarium. 6. Star-Flower, with ſpreading alternate petals, and the lower ones erect. 7. Star-Flower, with an angular ſtalk, having two leaves, and ſingle umbellated foot-ſtalks; Yellow Star-Flower. 8. Star-Flower, with an angular ſtalk, bearing two leaves, and branching foot-ſtalks, having umbels. 9. Star-Flower, with flowers growing in a corymbus, whoſe foot-ſtalks are taller than the ſtalks, and indented filaments. 10. Star-Flower, with flowers growing in a corymbus, foot-ſtalks lower than the ſtalk, and indented filaments. 11. Star-Flower, with a looſe conical ſpike of flowers, very long foot-ſtalks, and flowers ſtanding erect. 12. Star-Flower, with oval heart-ſhaped leaves. 13. Star-Flower, with a very long ſpike, and taper fiſtular leaves.

The firſt ſort grows naturally in ſeveral parts of England; this hath a pretty large bulbous root, from which come out ſeveral long keel-ſhaped leaves, which ſpread on the ground; between theſe comes out a ſingle naked ſtalk, about two feet long, ſuſtaining a long looſe ſpike of flowers, of a yellowiſh green colour, ſtanding upon pretty long foot-ſtalks, which ſpread wide from the principal ſtalk; the petals of the flowers are narrow, making but little appearance. The flowers have an agreeable ſcent: they appear in May; and when the ſeed-veſſels are formed, the foot-ſtalk which ſuſtain them become erect, and approach near the ſtalk. The ſeeds ripen in Auguſt.

The ſecond ſort grows naturally upon the hills in Portugal and Spain, but has been long cultivated in the Engliſh gardens, by the title of Star Bethlehem; this hath a very long oval, bulbous root, from which ariſe ſeveral long keel-ſhaped leaves of a dark green colour, and in the middle comes out a naked ſtalk, which riſes near three feet high, terminated by a long conical ſpike of white flowers, ſtanding upon pretty long foot-ſtalks, which riſe one above another, inclining to an upright; theſe appear in June, and are ſucceeded by roundiſh ſeed-veſſels, having three cells filled with roundiſh ſeeds, which ripen in Auguſt.

The third ſort grows naturally in Arabia; this hath a very large bulbous root, from which come out ſeveral broad keel-ſhaped leaves; the ſtalk is thick and ſtrong, riſing between two and three feet high, bearing a long ſpike of large-white flowers, ſtanding upon long foot-ſtalks; they are compoſed of ſix petals, which ſpread open in form of a ſtar, and appear in June, but do not ripen their ſeeds in England.

The fourth ſort grows naturally in the Levant; this hath a pretty large bulbous root, from which ariſe five or ſix long narrow leaves; the ſtalk riſes about a foot and a half high, and is terminated by a long looſe ſpike of white flowers, compoſed of ſix petals; the inner ones are broad, and the outer, which ſtand alternate, are narrow; it flowers in June, but does not perfect ſeeds here.

The fifth ſort grows in great abundance naturally in the kingdom of Naples, and is now become almoſt as common in England; for the roots propagate ſo faſt by off-ſets and ſeeds, as to become troubleſome weeds in gardens.

The ſixth ſort grows naturally in Africa: it has a bulbous root much ſmaller than either of the former; the leaves are long, narrow, keel-ſhaped, and flaccid; the ſtalks riſe about a foot high: they are ſlender, and ſuſtain ſix or ſeven flowers, hanging on long ſlender foot-ſtalks, placed at a diſtance from each other; this flowers in July, but does not produce ſeeds here.

The ſeventh ſort grows naturally in Yorkſhire, and ſome of the other northern counties in England; this has a large bulbous root, from which come out four or five keel-ſhaped leaves, about five inches long, and in the middle riſes an angular ſtalk, having two narrow leaves, which grow about ſix inches high, ſuſtaining at the top ſix or eight yellow flowers in form of an umbel, ſtanding upon long ſlender foot-ſtalks; theſe appear in April, and are ſucceeded by triangular capſules, having three cells, which are filled with roundiſh ſeeds.

The eighth ſort has ſmall bulbous roots, not larger than peas, from which ariſe one or two narrow keel-ſhaped leaves, about five inches long, of a greyiſh colour; the ſtalk is angular, and riſes about four inches high, having two narrow keel-ſhaped leaves juſt below the flowers, which are diſpoſed in an umbel upon branching foot-ſtalks; theſe are yellow within, but of a purpliſh green on their outſide; they appear in May, and are ſucceeded by ſmall triangular capſules, filled with reddiſh uneven ſeeds; it grows on the borders of cultivated fields in France and Germany.

The ninth ſort grows naturally in moſt parts of Europe, and is ſuppoſed to do ſo in England, though it is ſeldom found here, unleſs in orchards or grounds where the roots may have been planted; this has a bulb as large as a ſmall Onion, to which adhere many ſmall off-ſets; the leaves are long, narrow, and keel-ſhaped, ſpreading on the ground, and have a longitudinal white line through the hollow. The ſtalk riſes about ſix inches high, ſuſtaining an umbel of flowers, which are white within, but have broad green ſtripes on the outſide of the petals; theſe ſtand upon long foot-ſtalks, which riſe above the principal ſtalk; it flowers in April and May, and is ſucceeded by roundiſh three-cornered capſules, filled with angular ſeeds, which ripen in July.

The tenth ſort grows naturally in Arabia; this has a large bulbous root, from which riſe many long keel-ſhaped leaves, which embrace each other with their baſe: they are of a deep green, and ſtand erect; this has not been known to have flowered in England; the roots multiply exceedingly, and are never injured by froſt, although the leaves are put out before winter.

The eleventh ſort grows naturally at the Cape of Good Hope; it has a round bulbous root, covered with a white ſkin, from which come out four or five keeled-ſhaped leaves, embracing each other at their baſe; they are of a deep green, eight or nine inches long: in the middle of theſe ariſes the ſtalk, which is naked and about a foot high, juſt under; the flowers come out two or three ſhort leaves, which end in acute points.

The flowers ſtand upon very long foot-ſtalks, they are formed in a conical ſpike, and are compoſed of ſix oval petals of a pure white: within theſe are ſituated ſix ſtamina, which are about half the length of the petals, terminated by roundiſh ſummits. The flowers are in beauty in May, and are ſucceeded by roundiſh three-cornered capſules, with three cells filled with roundiſh ſeeds, which ſome years ripen here in July.

The twelfth ſort grows naturally at the Cape of Good Hope; this hath an irregular tuberous root, varying greatly in form and ſize, covered with a dark brown bark, from which ariſe ſeveral oval heart-ſhaped leaves, upon pretty long foot-ſtalks: they have ſeveral longitudinal veins, like Ribwort Plantain; the flower-ſtalks are ſlender, naked, and riſe about a foot high, ſuſtaining ſeveral ſmall, greeniſh, white flowers, found in a looſe ſpike, ſtanding upon long ſlender foot-ſtalks; they come out in November, making but little appearance, and are not ſucceeded by ſeeds in England.

The thirteenth ſort grows naturally on the dry rocks at the Cape of Good Hope; this hath a large, depreſſed, bulbous root, as big as a man's fiſt, covered with an uneven brown ſkin, putting out ſeveral taper hollow leaves, nine or ten inches long, between which comes forth a naked ſtalk near a foot high, terminated by a looſe ſpike of yellow flowers, of an agreeable ſcent; it flowers in May, but does not produce ſeeds in England.

Culture of the Star-Flower.

The four ſorts firſt mentioned are cultivated for ornament in the Engliſh gardens; the roots will live in the common borders, and produce their leaves, and multiply by off-ſets, but very rarely flower. 'Tis not a wonder that a native of a climate ſo different from, and ſo much warmer than our own, ſhould not readily flower with us in this rude way of culture; but there is ſo much beauty in the plant, that it ſhould be allowed all advantages.

The roots are brought over annually by the Italians, and they ſhould be treated as others from ſuch climates; when they are received they ſhould be cleaned, the dead ſkins pulled off, the decayed parts cleared away, and the roots wiped ſoftly with a cloth; after this let them be laid in a cool place in the open air three days, and then planted in the following manner: let ſome freſh black mould, from under the turf in a meadow, be mixed with equal parts of rotted cow-dung and pond-mud; let ſome looſe pieces of gravel be laid in the bottom of a pot, and this compoſt poured in to fill it half up; let the root be ſet upright upon this, and more of the mould poured in till it is covered half an inch; refreſh and ſettle the mould by a very gentle watering, and then ſet the pot in a warm ſhaded place.

Once in four days give a very little water; it is neceſſary to do this, but nothing requires ſo much caution; if the mould be ſuffered to become too dry, the root will not ſhoot its fibres: if it be made too wet it will rot; the caution of the gravel at the bottom of the pot was directed to preſerve the free paſſage of the water; and the way to know whether the temper of the mould be right, is to open it a little way at the edge of the pot to examine it.

If this practice be followed during the beginning of ſummer, there will be ſhoots ſeen toward the middle of July; theſe muſt be encouraged by more watering: and when the evenings begin to be cool, the plants muſt be removed into a warmer and opener place, but ſtill ſheltered from cold winds. It will be beſt to ſet it among the green-houſe kinds.

Toward the end of September let it be removed into the ſtove, and ſet in the bark-bed; it muſt be watered at times, and treated as the reſt, and it will flower in its full beauty.

After this, every ſpring and autumn the mould muſt be taken off from the ſurface, and freſh put in the places; and once in two years the root muſt be taken up, the off-ſets cleared away, and planted in ſeparate pots, and the old roots in freſh quantities of the ſame mould, as at firſt: then the plant will flower in all its perfection; and this is its natural treatment.

The fifth ſort is ſcarce worthy a place in gardens: but as it will thrive in any ſituation, or under trees, ſo a few plants may be admitted for the ſake of variety.

The ſixth ſort has not much beauty, therefore a few roots of it will be enough for variety, as alſo of the ſeventh and eighth ſorts; the two laſt will thrive in ſhade, but the ſixth ſhould have an open ſituation.

The ninth and tenth ſorts multiply ſo faſt by off-ſets from the roots, as to become troubleſome weeds in gardens; for every ſmall root will grow, and in two years produce twenty or thirty more: ſo that unleſs the larger roots are taken up every year, and diveſted of their off-ſets, the borders will be over-run with them.

The eleventh ſort is too tender to thrive in the open air in England, ſo the roots of this ſhould be planted in pots filled with light earth, and in the autumn placed under a hot-bed frame, where they may be ſecured from froſt, and in mild weather enjoy the free air; the leaves of this appear in the autumn, and continue growing all the winter, ſo muſt not be expoſed to froſt, nor ſhould be drawn up weak, for then the flowers will be few on a ſtalk and not large.

If the pots do now and then receive a gentle ſhower of rain in winter, it will be ſufficient, for they ſhould not have much wet during that ſeaſon; toward the beginning of July the leaves and ſtalks decay, and then the roots may be taken up, laying them in a dry cool place till the end of Auguſt, when they muſt be planted again.

The twelfth and thirteenth ſorts were formerly more common in the Engliſh gardens than at preſent; theſe kinds are more tender than any of the former, ſo ſhould be planted in pots filled with freſh light earth, and in winter muſt be placed in an airy glaſs-caſe amongſt Sedums, Ficoideſes, and ſuch other pretty hardy ſucculent plants, which require a large ſhare of air in mild weather, and but little wet. In ſummer they may be removed out of the houſe, and placed in a warm-ſheltered ſituation, obſerving never to give theſe plants much water when they are not in a growing ſtate, leſt it rot their roots: but when they are growing freely, they muſt be frequently but gently refreſhed with water; theſe roots ſhould be tranſplanted every year; the beſt time to perform this work is ſoon after the flower-ſtems are decayed, when the roots will be in the moſt inactive ſtate; when this is done, the off-ſets ſhould be carefully taken off, and each tranſplanted into a ſmall pot, filled with light freſh earth, and may be treated as the old roots.

Sun-FLOWER. See Sun-Flower.

Trumpet-FLOWER, Bignonia. See the article Bignonia.

Wind-FLOWER, Anemone. See Anemone.

FLUELLIN, a ſpecies of Speedwell. See the article Speedwell.

FLYWORT, a ſpecies of Lychnis. See Lychnis.

FOOT-STALKS, among botaniſts, the ſmall ſtalks which immediately ſuſtain the leaves, flowers, or fruit of a plant.

FORCING-FRAME, a contrivance for bringing the common fruits more ſpeedily to perfection.

The trees muſt all have the advantage of a wall, and their bloſſoming is to be brought forward by artificial heat: the moſt familiar way is by means of dung: it requires a large quantity of that manure, and the aſſiſtance muſt be at times renewed; but dung which has loſt its heat, is not deprived of its virtue; the dung which has been uſed for theſe will anſwer other purpoſes, and the real expence is leſs than imagined. As the dung is to be laid behind, there muſt be a glaſs work in front of the wall, and on the due management of theſe depends the whole buſineſs.

Three years are required to re-eſtabliſh thoſe trees in ſtrength, which have been forced by theſe means; therefore whatever be the quantity the gardener intends to force each year, four times ſo many trees, and the due extent of wall for them is to be allowed for the whole; he muſt chuſe a part of the ground which has the full ſouth ſun, and is well defended from all the cold quarters. Here a wall muſt be built eleven feet in height, and the ſouth ſurface covered with good plaiſter, laid on ſmooth and white-waſhed; four feet and a half from the bottom of the wall let there be drawn a line, as a mark for the border: let this be well dug up, and if not naturally a good ſoil, it muſt be improved by art; a ledge of firm oak board muſt be laid along the line, or outer edge of the border, which muſt be thick enough to admit a groove, in which the wood-work of the frame of ſome glaſs lights may move; let as many of theſe glaſs lights be made as will cover one fourth part of the wall, that being the quantity to be uſed at once: and let theſe be well framed; the breadth of each may be at the pleaſure of the gardener for convenience of moving, but their height muſt be ſuch as will reach from the ledge of oak in front of the border, to the top of the wall. At the top there muſt be another frame-work of firm wood, for receiving the upper edge of the lights, and this may project five inches from the ſurface of the wall; the work muſt be all extremely cloſe, and there muſt be at due diſtances ribs of wood ſlanting from the top of the wall to the frame, to ſupport the lights from bending inwards; this being done, the whole is in readineſs for ſervice; the two ends muſt be cloſed in ſuch manner as to admit a door in each, and this muſt be made firm, ſtrong, and to ſhut cloſe.

The trees being thus defended before, are to be forced to bloſſom and fruit at an early ſeaſon, by the heat of the dung behind; the firſt time of applying this muſt be the third week in November, and from that period to their ripening, the heat muſt be kept up conſtantly by freſh quantities of dung. The common horſe-dung, with the litter among it, is to be uſed for this purpoſe; and the preparation it requires, is only to be thrown up in a heap for five days before, that the fermentation may be equal in every part.

The gardener muſt draw a line along the ground behind the wall; that is, on its north-ſide, at five feet diſtance from its baſe. The dung is to extend as far as this, from the wall at the bottom, and is to be carried up gradually ſloping to the top, but it is to be there eight and twenty inches thick. About five weeks after this, let a freſh parcel of dung be got ready, laying it in a heap as the firſt; and when it has lain the due time to heat equally, let the old dung be removed from the wall, and this put in its place, piling it up as the other, juſt to the top of the wall, for the nature of it is to ſhrink down; this is to be repeated when there is occaſion, and this is all that is required in the conſtruction of the frame.

FOUNTAIN, or *Artificial*-FOUNTAIN, a contrivance by which water is violently ſpouted upwards. Fountains, the theory of which does not belong to a work of this kind, are not only great ornaments to a fine garden, but alſo of much uſe; they ſhould be ſo diſtributed, that they may be ſeen almoſt all at the ſame time, and that the water-ſpouts may range all in a line one with another.

FOX-GLOVE, *Digitalis*, a genus of plants, ranged by Linnæus among the *didynamia angioſpermia*, and of which there are four ſpecies. 1. Shrubby Fox-glove, with the little leaves at the cup lanceolated, and with the flowers bilabiated and acute, or Golden Fox-glove. 2. Fox-glove, with the leaves of the cup oval and obtuſe, and with the lower lip of the length of the flower; or Ferrugineous Fox-glove. 3. Fox-glove, with the ſmall leaves of the cup oval and acute, the petals obtuſe, and the upper lip entire; or the common Fox-glove. 4. Fox-glove, with the ſmall leaves of the cup ſpear-ſhaped, and the petals acute, with the upper lip bifid; or the leſſer Spaniſh Purple Fox-glove.

The Golden Fox-glove riſes two feet high, the root is brown, divided and ſpreading, and the main ſtem is purpliſh; this is of a woody hardneſs, and with good culture ſends out ſeveral branches. They have a red bark, but obſcured by a white cottony matter, that hangs looſely over them.

The leaves are numerous, and have no foot-ſtalks; they are long, ſharp-pointed, ſerrated, and of a freſh green colour, which a light hairyneſs renders greyiſh and ſilvery. The flowers are large, and placed in long and crowded ſpikes: they are ſo divided as to mimick the labiated form, and their colour is a bright and pure gold yellow.

It is a native of the Canary Iſlands, where it grows in rotten ſoils that have ſome ſhelter; it there flowers all the year, and with good management will do nearly the ſame with us.

Moſt flowers contain in their baſe a honey juice, but this ſhews ſomething of that kind more diſtinguiſhably than almoſt any other. Where it is a native, there continually ſtands in the center of each flower a large drop of a clear clammy liquor, of an extremely bitter taſte; with us the drop is ſmaller, but it has the ſame bitterneſs, and when at its full bigneſs it will drop from the flower. The whole plant is alſo bitter.

Culture of the Golden FOXGLOVE.

This plant is to be raiſed from ſeeds; and thoſe ripened in Europe will produce it: but as on all other occaſions, when there is opportunity of having them from the natural place of growth it is better. They muſt be ſown early in ſpring upon a moderate hot-bed, and raiſed by the common culture given to plants ſo propagated, all that is particular is the ſoil. When they have acquired ſome ſtrength in the ſeed hot-bed, they muſt be planted out into pots, and theſe ſet in another hot-bed, that they may the more freely root, and ſend up new ſhoots from the ſides of the original ſtem, for if that be prevented by a careleſs management, they will ſometimes run up with a ſingle ſtalk, and loſe much of their beauty. They muſt in this new hot-bed be ſheltered from the ſun, till they have taken root, then expoſed by degrees to the air; and at laſt having been removed into larger pots, they are to be ſet among the green-houſe plants in ſummer and houſed with them in winter.

The moſt proper ſoil for them is made of equal quantities of garden-mould, wood-earth, and pond or river mud. In this compoſt, with frequent and moderate waterings, they will flower as in their natural climate, from June till October, or later.

Ferrugineous FOXGLOVE. This is a ſingular plant, colour is greatly againſt it, but the upright robuſtneſs of the ſtem, the height of the plant, its cluſtered leaves, and above all its long ſpike of thickſet flowers, demand our attention.

The root is a thick head, with innumerable long fibres. The ſtalk is five feet high, rounded, but lightly ridged, and of a duſky green. The leaves are long, narrow, ſomewhat hollowed, and extremely numerous: they are placed very cloſe, but irregularly on the ſtalks; and their colour is a dull green. The flowers are placed as thick as they can ſtand, in a ſpike of near a yard in length, and they gape open. Their colour is that of ruſty iron, a yellowiſh or reddiſh brown, and they are of conſiderable duration.

Culture of this FOXGLOVE.

It is a native of the warmer parts of Europe, and the eaſt; but lives very well throughout the year in our gardens, if a warm part of the nurſery is choſen for its propagation; and a ſheltered part of the garden for it to flower.

Let the ſeeds be ſaved from a robuſt and large plant, and when they have been carefully dryed, and hardened upon a papered ſhelf, let them be put up in bags in ſmall quantities, and hung up for the winter. In the March following let a bed be dug up in a warm part of the nurſery, and the ſeeds ſcattered on with an even hand; not too thick. The common mould of the ſeminary will anſwer for this purpoſe, for they will rot in too rich a ſoil. When the plants come up let them be thinned, and the bed carefully weeded, and at times refreſhed with a little water. When the plants are four inches high, let a new bed be dug up for them in a near part of the nurſery; and in the evening of a cloudy day, let them be taken up and planted in this at ſeven inches diſtance, taking care to keep a good quantity of their original mould about their roots. Particular regard muſt be had to the preſerving the upright ſtraitneſs of the ſtalk; becauſe on that a great part of the beauty of the plant will depend.

Let them be watered in their new bed as ſoon as planted, and ſhaded by a reed-hedge or mat, till they have taken root; after which let the bed be conſtantly and carefully weeded, and the plants kept in a ſtate of free growth by frequent but moderate waterings. In autumn let them be removed into the places where they are to flower. The beſt compoſt for this purpoſe is a mixture of equal parts of garden-mould and dry paſture earth. Open holes in this, and ſet the plants upright in it with a good ball of their own earth; and tye them up to ſhort firm ſtakes to ſecure their upright growth.

They will thus flower very boldly, and the fruit of of them ſhould be permitted to ripen ſeeds. It is with theſe as with many other of the hardy fibroſe rooted European kinds, they may be made either biennial or perennial at the pleaſure of the gardener.

If they be ſuffered to ſtand and ripen the vaſt quantity of ſeed which naturally follows that great number of flowers, the root becomes quite exhauſted, and the plant dies; but if the ſtalk be cut down before the flowers fade, the root will continue ſtrong for ſeveral years. Therefore let the gardener ſave ſome ſeed from one plant every year, and let that be the talleſt and ſtouteſt of all; and let him cut down the others as ſoon as they are paſt their beauty. From the ſeeds thus ſaved from the beſt plants, and ſowed every year, he will have an improved kind; and from the others, whoſe ſtalks he cut down, a large increaſe by parted roots.

The ſame method of culture is proper for the third and fourth ſpecies of this genus.

Hot-bed FRAME. See HOT-BEDS.

FRAXINELLA, or *White* DITTANY, *Dictamnus*, a genus of plants ranged by Linnæus among the *decandria monogynia*, and of which there is only one known ſpecies.

There are three varieties of this plant, one with a pale red flower ſtriped with purple, another with a white flower, and one with ſhorter ſpikes of flowers.

This is a very ornamental plant for gardens, and as it requires very little culture, deſerves a place in all good ones. It has a perennial root, which ſtrikes deep into the ground; the head annually increaſes in ſize; it ſends up many ſtalks in proportion to its bigneſs, which riſe from two to three feet high, decorated with winged leaves placed alternate. The flowers are produced in a long, pyramidical, looſe ſpike, or thryſe, on the top of the ſtalk, nine or ten inches long. The whole plant when gently rubbed, emits an odour like that of Lemon peel, but when bruiſed has ſomething of a balſamic ſcent.

Culture of the FRAXINELLA.

It is propagated by ſeeds, which ſhould be ſown in autumn, ſoon after they are ripe. In April following the plants will come up, they ſhould be conſtantly kept clean from weeds; and in the autumn when their leaves decay, the roots ſhould be carefully taken up, and planted in beds at the diſtance of ſix inches. Theſe beds ſhould be four feet broad, and the paths between them two. In theſe beds the plants may ſtand two years

years, during which time they muſt be kept clear from weeds.

In the autumn they ſhould be carefully taken up, and planted in the middle of the borders of the flower-garden, where they will continue thirty or forty years, producing more ſtems of flowers in proportion to the ſize of the roots. They ſhould be kept clean from weeds, and the ground about them dug every winter.

FRIER'S COWL, a ſpecies of the Arum. See the article ARUM.

FRINGE-TREE. See SNOWDROP-TREE.

FRITILLARY, *Fritillaria*, a genus of plants ranged by Linnæus among the *hexandria monogynia*, and of which there are five ſpecies. 1. Fritillary with all the leaves alternate. 2. Fritillary with a tufted branch, naked below, and with entire leaves; or the Crown Imperial. 3. Fritillary with a tufted branch, naked below, and variegated leaves. 4. Fritillary with a naked branch and oblique leaves; or the Perſian Lily. 5. Fritillary with the lower leaves oppoſite.

The firſt ſpecies is an old inhabitant of our gardens, pleaſing by its peculiarity, and for being raiſed with little trouble. The root is bulbous, firm, and compoſed of two unequal parts. From the middle riſes a kind of pillow, and from this the ſtalk, whoſe baſe is hung with many fibres. The ſubſtance of the root is uniform, ſoft, and white, and it is neither coated nor covered with films. The ſtalk is round, upright, not very thick or ſtrong, but ten inches high; ſpungy within, and covered with a tough green rind, tinged often with brown and purple.

The leaves are placed from top to bottom with a beautiful irregularity, five or ſix, ſometimes more, grow on a ſtalk, and often leſs. They are long, narrow, of a deep green, hollowed, ſharp-pointed, and of an acid taſte. From the top hangs one large flower: culture gives many, but the plant is treated of here as in the ſtate of nature, or little removed from it in common gardens. This bends its weak ſtalk, and the mouth opens to the ground. It is large and extremely elegant, as well as ſingular. It riſes naked from the ſtalk, without cup or any other defence. It is in ſhape like a bell, wide at the baſe, and formed of ſix petals, which ſtand parallel, and are pointed at the ends. Near the baſe of each of theſe is an oblong hollow, containing a drop of honey juice. The colouring of the flower even in its wild ſtate is not without its changes: and it is in all beautiful. The general tinge is purple, chequered with various degrees of red and white. The variegations are not diſpoſed at random as in the generality of painted flowers, but placed in regular little ſquares; they are more diſtinct on the outſide of the petals, for within the flower glows with a more uniform purple down the middle of each: on the outſide there alſo uſually runs a rib of yellowiſh hue, adding no little grace. This is the appearance nature gives the flowers in the moſt favourable ſoils; but from a variety of accidents it often declines from this its natural luſtre. The purple grows faint, the yellow greeniſh, and the variegations fade one into another. But there always remains a great deal of beauty.

In poor ſoils the plant will be ſmall and the flowers nearly or entirely white.

Purple Pyrenean FRITILLARY, a ſhort deſcription will ſerve to explain this plant, whoſe general form and characters are the ſame with thoſe of the preceding kind, its moſt obvious difference, is in the ſize and colour of the flower.

The root is a double bulb, ſoft, fleſhy, and naked. In the wild ſtate it is ſmall, but in gardens it often exceeds that of the other. The ſtalk is ſlender, upright, green, and beſet with many plants. Theſe are long, narrow, ſharp-pointed, flatted, and of a freſh green. They ſtand irregularly on the upper part of the ſtalk, but on the lower part in pairs. One flower as in the other hangs naturally from the top of the ſtalk; and it is bell-ſhaped as in that, and formed of ſix petals; theſe turn their edges a little upward, and are variouſly ſtained with yellow; the ground colour is a duſky tinge, and there is occaſionally more or leſs of the yellow. The edges that turn up ſhew a yellowiſh hue: this with more or leſs mixture of green is the colour of the whole inner ſurface; the flower is there more gloſſy than without; and the whole is marked with irregularly chequered purpliſh ſpots. Theſe are more diſtinct toward the lower part of the petals.

Culture of theſe FRITILLARIES.

Theſe two kinds are natives of many parts of Europe, and love a rich and ſomewhat moiſt ſoil, where they have a little ſhelter. The foot of a hill near which there runs ſome little ſtream, and a wood defends the ſpot from the north, affords them their full natural perfection.

From plants which grow in ſuch ſoil and ſituation ſhould be ſelected ſeeds for raiſing them under yet more favourable circumſtances in gardens; and from theſe will be produced the ſeveral elegant kinds which follow. The ſtrongeſt of theſe plants, or of the ſame kinds in gardens, ſhould be marked while in flower, and the ſeed-veſſels cut off when they are ripe; this will be in the latter end of July. Let them be laid on a ſhelf three weeks to harden: then let the ſeeds be taken out, and ſpread for a week more; and at the end of this time which will be the latter part of Auguſt, let them be ſown upon a piece of good ground in the nurſery, open to the morning ſun, but defended ſouth and north. Here let them be allowed the common management; weeded from time to time, thinned where they have riſen too cloſe, and watered often a little at a time.

In the beginning of the following autumn take up all the roots: plant them at three inches diſtance on a freſh bed, in a like ſituation, and allow them the ſame care. They may remain in this bed till the time of their flowering; which according to the management, or other accidents, will be the third or fourth year. Then the beſt plants muſt be marked; and in autumn their roots taken up, and planted in another bed at five inches diſtance.

There will be thus produced many very handſome flowers; and from theſe will be raiſed with eaſe the following elegant varieties.

Iſabella FRITILLARY. This is a very beautiful variety, produced from the common purple kind, and leſs diſtinct in the appearance than many of the ſucceeding. The difference principally conſiſts in the firmneſs of the ſtalk and colouring of the flower. The root is white and fleſhy. The ſtalk is round, and toward the bottom purpliſh. The leaves are very narrow, few in number, placed irregularly, and of a pale green. One flower bends the top of the ſtalk, and this does not exceed the common kind in bigneſs, but greatly excells it in the colouring. The baſe is wider and more rounded. The petals are broader in proportion to their length than in that flower, and no part of the edge turns up.

Two colours diverſify the whole; theſe are an elegant light red, and a clear green. They are diſpoſed in large ſquare pots interchangeably, and the edges of theſe figures are very diſtinct. The colours are brighter toward the ends of the petals, and more obſcure nearer the baſe. The great merit of this flower is the brightneſs of the red and the diſtinctneſs of the ſpots.

It is ſometimes produced from a firſt ſowing, but in greater perfection from the ſowing again the beſt kinds raiſed, as has been already directed, from wild ſeeds.

Great Umbelliferous FRITILLARY. This ſtands diſtinguiſhed eminently from all the other kinds by the ſtrength and ſtatelineſs of the ſtalk, the breadth and firmneſs of the leaves, and the ſize and number of the flowers.

The root is large and white. The ſtalk riſes to the height of eighteen inches, and is purpliſh at the baſe, green upwards, and of a firm ſubſtance. The leaves are conſiderably broad, long, ſharp-pointed, often twiſted, and of a deep green. At the top of the ſtalk there are three or ſometimes more flowers; very large and conſpicuous alſo by the boldneſs of their colouring. They do not regularly hang down as in the other kinds, but ſome droop more than others, and ſometimes one or more are nearly horizontal. The baſe is ſwelling and round; the petals are broad and ſharp-pointed and the flower opens regularly without any turning up of the edges. The colours are very fine, a deep lively purple, and a very agreeable greyiſh brown. This latter is the ground colour, and the chequerings are of the purple; the whole flower is of a gloſſy poliſhed ſurface, and has ſome lines of a yellowiſh green within. It riſes from the ſeeds of the common purple kind, but rarely perfects any itſelf. Therefore when the gardener has obtained a plant of it, he muſt increaſe his ſtore by off-ſets.

Small umbelliferous FRITILLARY. This is a very ſingular and elegant variety. The root is ſmall and whitiſh. The ſtalk is firm, green, and eight inches in height: culture rarely makes any conſiderable alteration in this article, though it covers the whole length with leaves, and crowns its top with numerous flowers. The leaves are long, moderately broad, and of a freſh and lively green: they are hollowed, often waved or twiſted, and they ſtand irregularly, except at the bottom, where they commonly are found in pairs. At the top of the ſtalk are placed four, five, or ſix flowers in an elegant cluſter. Each has its ſeparate ſlender footſtalk, and they all droop as in the other kinds. The points of many leaves riſe above them, and give the whole ſomewhat of the appearance of the Crown Imperial. See the article CROWN IMPERIAL.

The flowers are ſmall, hollow, angulated at the baſe, and turned up a little at the edges of the petals. The colour is a deep duſky purple, with variegations of yellowiſh green. On the outſide the colours are leſs diſtinct; on the inner part they are much more regularly diſpoſed; and the whole inſide is of a poliſhed ſurface. This is produced from the ſeeds of the Pyrenean kind; but like the laſt deſcribed, it muſt, when once obtained, be propagated farther by roots, for it ſcarce ever ripens any ſeeds itſelf.

Yellow Italian FRITILLARY. This is a variety from the ſeed of the common purple kind, but it differs greatly and elegantly from it in the colouring of the flower, and even in the general conformation of the plant.

The root is large and whitiſh. The ſtalk is round, fleſhy, and firm, but rarely exceeds eight inches in height. The leaves are remarkably broad, leſs hollowed than in the other kinds, and obtuſe at the end. From the top of the ſtalk hangs one flower. It is very large, and particularly beautiful; round at the baſe, regularly open at the mouth, and chequered all over with perfect regularity. The ground colour is a very fine yellow: the ſpots of a deep crimſon, inclining a little to purple; and the outſide and inner have both a gloſſy ſurface. This ripens ſeeds in great perfection, and they ſhould be ſaved with care.

Green FRITILLARY. It is a perennial variation of the Pyrenæan kind; and, if leſs worthy to be cultivated than ſome others for its beauty, it has a ſingularity that will very well ſupply the place. The root is large, and in favourable ſoils will ſwell to a very large ſize. The ſtalk is round, upright, green, and ſpotted with purple and brown; the leaves are moderately broad, and of a fine freſh green. The flowers hang from the top of the ſtalk, often two, rarely more; ſometimes only one; and though each, when there are more, has naturally its footſtalk ſeparate, the two will ſometimes unite into a broad, flat, common pedicle, and the flowers grow from its top together. This is a very ſingular and not inelegant appearance. The flower is large, and compoſed as in the others, of ſix petals; they are roundiſh at the ends, and naturally turn up a little at the edges. The colour is a duſky yellowiſh green, ſpotted on the outſide obſcurely, and within more diſtinctly with a deep blackiſh purple. The ſpots are not diſpoſed in chequers, as are moſt of the others, but they are thrown together with a tolerable regularity. This ripens its ſeed freely.

Snowy FRITILLARY. This is a variety of the common purple Fritillary, and though leſs ſpecious than the generality of the others, ſhould be preferred by all who cultivate this flower, for the variety it gives among them.

The root is ſmall. The ſtalk is eight inches high, round, weak, and pale. Three or four leaves ſtand at diſtances upon it, and theſe are narrow, long, hollowed, ſharp-pointed, and of a lively green. From the top hangs one flower; this is large, broad at the baſe, and ſomewhat angulated, plain at the opening and formed as uſual of ſix petals, whoſe extremities are pointed. The colour is often a pure and perfect white like ſnow. Sometimes it has a creamy tinge, and ſome flowers ſhew a pearly grey. All very elegant, with a lively aſpect, and gloſſy ſurface. The ſame ſeeds will produce others, which are duſky, and want the proper luſtre; but theſe ſhould be deſtroyed. The white, which is generally uniform and entire, admits ſometimes a faint variegation. This is not in chequers, but in a kind of little creſcents It ripens ſeeds, but they need not be ſaved; for they are weak in the principle of growth, and there is no certainty of their producing the ſame flower.

Double FRITILLARY. This is alſo a variety of the common purple kind, which demands great attention. The root is fleſhy, white, and large. The ſtalk is upright, firm, and pale; ſometimes tinged conſiderably with purple. The leaves are narrow, and of a pale but pleaſant green. They ſtand irregularly, and are not very numerous. One flower terminates the ſtalk, and it hangs drooping, tho' uſually leſs ſo than the common kind. It is very broad in proportion to its length, and is compoſed of twelve petals, ſometimes more. But moſt uſually it is double the quantity of the common kind. The colour is throughout a duſky purple, but there is a great and beautiful variegation. The ground part has the purple faint, and mixed with a great deal of green. The ſpots are perfect purple, and they are regularly ſquare, and placed in the exact chequered order.

This flower will ripen ſeeds, but they have not the ſtrength of thoſe from the ſingle kinds, nor will they regularly produce double ones. It ſhould therefore be encreaſed by off-ſets.

Culture of theſe FRITILLARIES.

The gardener, in order to get good ſeed, muſt watch the plants from their beginning to flower, to the end; for ſome will be earlier, ſome later; he muſt mark for ſeed the moſt promiſing kinds, by tying them up to ſticks. This enſures the plants without miſtake, and the ſeed will ripen the better for the ſtalk being kept from rocking with the wind. The only care muſt be, that the root is not hurt by the thruſting down the ſtick.

The plants to be ſelected, are thoſe which have a ſtrong ſtalk with a few leaves on it; and have the flower large, wide at the bottom, and regularly opening at the mouth, with the points the leaſt ſharp that can be. In the common purple they ſhould be quite ſtrait, neither turning in nor out; and in the Pyrenæan kind they ſhould all regularly turn up a little of the verge. Theſe are the marks to be obſerved for ſaving ſeed, as to the colouring it is not material: the chance of culture gave it at the firſt, and will continue to give it from whatever kind: in this the ſeed takes no certain effect; but the bigneſs and ſhape of the flower, and the firmneſs of the ſtalk, are often influenced by it greatly. When theſe are marked, the uſual care muſt be taken to make them bring their ſeeds to good maturity. The plants all about them muſt be cut down; and the mould ſtirred frequently, and watered a little at a time, and often. The ſeed veſſels muſt be cut off when full grown, and hardened with a part of the ſtalk by laying on a ſhelf for a month: the ſeeds muſt be then aired looſe about a week, and by that time they will be in perfect good condition for ſowing in a proper ſoil.

The compoſt proper for theſe Fritillaries muſt be made as follows: Mix one barrow of pond-mud with two barrows of rich dry paſture earth, and half a peck of hen's dung. Work theſe well together, then add half a buſhel of river-ſand, and break them well again. The whole will now come into a fine, mellow, and equal mixture. The beſt time for doing this is as ſoon as the flowers mark for ſeed. Let it be ſpread a foot thick in a ſhady place, and once in ten days turned.

In the middle of Auguſt make two, or more, boxes of rough boards, a foot and a half deep, and of ſuch bigneſs as can be conveniently managed. Bore four or five holes in the bottom of each; lay ſome oyſter-ſhells over the holes, and pour in the compoſt till they are nearly filled. Set the boxes where they may have the morning ſun, and ſcatter on the ſeeds pretty thick. Sift upon them a finger's breadth of the compoſt, and lay over the whole a light covering of peaſe-ſtraw. Let this be taken off when the mould is dry, that it may be watered. This muſt be done with a light and regular hand; and no moſs or weed be ſuffered to appear upon the mould.

In winter the boxes muſt be moved to ſome place where they will be defended from the north, and open to the ſun. In ſpring let them be placed where they were at firſt.

When the young plants have ſo much ſtrength that the ſtrongeſt can be diſcerned from the reſt, let the others be cleared away where they riſe too thick, and only ſuch a number left in each box as can be ſupplied with nouriſhment. Keep the ſurface clean from weeds, and water it whenever the mould is too dry. This muſt be the management while the plants keep their greenneſs. When the leaves are faded, let half an inch of the compoſt, that was left, be ſifted over them, and let them have the ſame care they had the preceding year.

The next ſummer, when the leaves are faded, let the mould be all taken out of the boxes, and ſifted. The roots will be thus ſeparated, and they muſt be immediately planted in a bed of the ſame compoſt, ſheltered from the north, and from the noon-day ſun. They ſhould be ſet here at four inches diſtance, and left to flower. There will be a great variety, but let none be deſpiſed the firſt year.

When the leaves are decayed they muſt be taken up, and immediately planted again, in freſh compoſt, at five inches diſtances This will give them a great advantage for the next year's flowering, and the gardener will then be able to form ſome judgment of their value.

After the ſecond year's flowering, which is uſually the fourth from ſowing, the roots are to be conſidered as arrived at full maturity, and to be treated differently, according to the diſtinction already made of thoſe which ripen ſeeds, and ſuch as are to be encreaſed by roots. For this tranſplanting therefore two beds ſhould be provided, the one larger for receiving thoſe which ripen ſeeds, and the other for the kinds which are to be encreaſed by roots.

For this purpoſe, let him mark by ſeparate ſticks, while they are in flower, thoſe which have more than one flower upon the ſtalk, and thoſe which have more than ſix petals in the flower. No matter whether there be three or four flowers in the firſt caſe, or twelve petals, as we have deſcribed in the perfect double flowers. If there be more than one upon the ſtalk, or more than ſix petals in a flower, continued culture will bring them to the full perfection. The bed muſt be very well prepared for theſe; for they are not, after this plantation, to be removed for three years. Let them be ſet at ten inches diſtance in the new compoſt, and the ground kept clean from weeds, and never ſuffered to be too dry.

This will be all that is requiſite in the ſummer months; but every autumn there ſhould be half an inch of freſh compoſt ſifted over the bed; and in the ſevere froſts the ground ſhould be covered with peaſe-haulm.

Theſe being diſpoſed in that manner, the larger bed is to be prepared for the others. They muſt be taken up as ſoon as the others are planted, which ſhould be when the leaves fade; and they are not to be kept out of the ground, but immediately ſet again. They ſhould be allowed eight inches diſtance, and this management repeated again every year, giving them always freſh compoſt. Thus will a foundation be laid for the moſt perfect ſtock of this ſingular flower.

The many-flowered and double kinds, will, during three years ſtanding, grow to full perfection, and when they are, at the end of that time, taken up, a number of off-ſets will be found ready for ſeparating by way of encreaſe.

The others, in the ſame manner, will flower each year more and more perfectly: every ſeaſon the fineſt of them ſhould be marked for ſeed; and each autumn there ſhould be a new ſowing.

Broad-leaved Cluſter FRITILLARY. This and the following Fritillary are much later in flowering than any of the preceding. The root of this plant is moderately large: the ſtalk is firm, round, green, upright, and, according to the ſoil, from ſix to ſixteen inches in height. The leaves are very numerous, they ſtand oppoſite at the bottom; but on the upper part of the ſtalk are alternate. The lower leaves are alſo conſiderably broad, the others are narrow, ſharp-pointed, ribbed, and of a pale green. The flowers hang from the tops of the ſtalks in various directions, but with a wild and pleaſing irregularity. Together they form a roundiſh cluſter, and they hang naturally downward, but their ſtalks twiſt, and ſometimes turn a little upward. Their colour is a dingy purple mixed with yellow. The flower conſiſts of ſix petals: a broad rib of duſky yellow runs along the middle of each petal, and the ſides are purple. There is little of the chequering viſible in this part: all that approaches to it, is, that a few purple ſpots are irregularly ſcattered over the yellow rib. Within the colours are brighter and placed more regularly: the part neareſt the baſe is chequered, as in the other kinds: the ground colour is yellow, and the chequering purple.

No particular rule is needed for the culture of this Fritillary, it muſt be managed as directed for the Pyrenæan kinds; and the ſtock muſt be encreaſed by parting the roots, for it does not well ripen the ſeed.

Fleſhy late FRITILLARY. This is a very elegant plant. The root is moderately large, and has many fibres. The leaves are of a deep green, long, narrow, obtuſe, hollowed, and of a fleſhy ſubſtance. The ſtalk is ten inches high, purpliſh at the baſe, upwards of a pale green, and tolerably firm. The leaves on this ſtand alternately, and at diſtances; they reſemble thoſe from the root; but that they are ſmaller; and their ends are often purpliſh. One flower hangs from the top of the ſtalk; this is large, and of the moſt perfect ſhape: hollowed as a cup, rounded at the baſe; and formed of ſix petals, which ſtand very regularly; they turn in their points at firſt, but have them perfectly ſtrait when the flower is full blown. Three or four of the upper leaves uſually riſe perpendicularly over the flower, and are of a freſher green than the others; theſe add greatly to the beauty of the plant. The colouring of the flower has a delicacy and variety that no other of the Fritillary kind exceeds, and few can be ſaid to equal. The chequering is not formally regular, but it is very pleaſing. The ground colour of the flower is a delicate fleſhy hue; there runs down the middle of each petal a broad rib of olive; and the ſpots of a lemon colour: they have ſomething of the ſquare ſhape, that makes the chequer-work in the other kinds; and they are diſpoſed in ſuch a manner as to reſemble it; but there is not the exactneſs as in many others.

Culture of the late FRITILLARIES.

The culture of theſe Fritillaries, as we have already obſerved, differs in nothing from that of the earlier ſorts, but their beauty is loſt when they are planted promiſcuouſly among them; for they do not come into flower till thoſe are decayed, and the beds are no longer examined; therefore to ſhew theſe in perfection as long as poſſible, a particular bed muſt be prepared for them in a part of the garden where the ſun does not come till about ten in the morning; let this be made up with the ſame compoſt directed for the other Fritillaries, and they muſt be planted at a foot diſtance. They muſt have leſs water than the other kinds; the bed muſt be kept conſtantly weeded, and the ſurface be once in ten days broke with a trowel. This will diſpoſe it to retain the dews, and nothing more is required.

FRITILLARIA-CRASSA, *Stapelia*, a genus of plants, of which there are two ſpecies. 1. Fritillaria-craſſa, with ſpreading indentures to the branches. 2.

Fritillaria-craſſa, with erect indentures to the branches.

The firſt ſort has many ſucculent branches, ariſing from the root, which are five or ſix inches long, having ſeveral protuberant indentures on their ſides, ſpreading open horizontally, ending in acute points; the branches, which ſpread on the ground, emit roots from their joints, ſo where they have room will extend very wide. From the ſides of the branches toward their bottom, comes out the foot-ſtalk of the flower at one of the ſinuſes, and ſuſtains one flower, having a large thick petal, cut half-way into five points, like a ſtar, which ſpreads open flat; its colour is greeniſh on the outſide, but yellow within, having a circle of purple round the nectarii, and the whole petal is finely ſpotted with purple, reſembling the belly of a frog. The flower when blown, has a very fetid odour, like that of carrion, ſo like, that the common fleſh-fly depoſit their eggs on it, which frequently are hatched, but wanting proper food die ſoon after.

The branches of the ſecond ſort are much larger than thoſe of the firſt, and ſtand more erect, but ſpread and emit roots in the ſame way.

They have four longitudinal furrows, which divide them into four angles, which have protuberant indentures on their edges, whoſe points are erect. They are nearly of the ſame colour as thoſe of the firſt, being of a dark green in ſummer, but inclining to purple in the autumn. The flowers come out upon ſhort foot-ſtalks at the ſides of the branches; theſe are ſhaped like the former, but are larger; the petal is of a thicker ſubſtance, and on the inſide covered with fine purpliſh ſoft hairs. The ground is an herbaceous yellow, ſtreaked and chequered with purpliſh lines. This ſort produces its flowers in much greater plenty than the firſt, ſo that in ſummer and autumn, they are ſeldom without.

Culture of the FRITILLARIA-CRASSA.

Both theſe plants are natives of the Cape of Good Hope, where they ſtrike their roots into the crevices of the rocks, and ſpread themſelves greatly.

They are propagated here very eaſily, by taking off any of the ſide branches, during the ſummer months, which when planted, put out roots very freely. The branches ſhould be ſlipped off from the plants to the bottom, where they are joined by a ſmall ligature, ſo will not occaſion a great wound, the joints at the place where they are connected being almoſt cloſed round; for if they are cut through the branch, the wound will be ſo great as to occaſion their rotting when planted. Theſe ſhould be laid in a dry place for eight or ten days, that the wounded part may dry and heal over, before they are planted, otherwiſe they will rot. They muſt be planted in pots filled with a compoſt, made of freſh ſandy earth, mixed with lime-rubbiſh and ſea-ſand. If the pots are plunged into a moderate hot-bed, it will promote their taking root; they ſhould be now and then ſprinkled with water very ſparingly, and as ſoon as they have taken root, they muſt be inured to the open air.

If theſe plants are kept in a very moderate ſtove in winter, and in ſummer placed in an airy glaſs-caſe, where they may enjoy the free air, and at the ſame time be ſcreened from wet and cold, they will thrive and flower very well; for although they will live in the open air in ſummer, and may be kept through the winter in a good green-houſe, yet thoſe plants will not flower ſo well as thoſe managed in the other way. They muſt have very little water, eſpecially in winter.

FRONDES, denotes leaves conſiſting of ſeveral other leaves, and forming the whole of the plant, as is the caſe of the Fern kind, in which the fructifications being on the back of the leaves, the ſingle leaf makes the whole plant, and is called Frondis, not Folium.

FRONDOSE, full of leaves, or ſhoots.

FRUCTIFICATION *of plants*. See GENERATION, PLANT, &c.

FRUCTISTÆ, in botany, that ſet of authors, who have attempted the eſtabliſhing the claſſes and diſtinctions of plants upon the fruit, ſeed, or receptacle of theſe in plants. Of this liſt are Cæſalpinus, Morinſon, Ray, Herman, and Boerhaave.

FRUIT, the production of a tree or plant, for the propagation or multiplication of its kind. In this ſenſe the word takes in all kinds of ſeeds, with their furniture.

But botaniſts uſually underſtand by it, that part of a plant wherein the ſeeds are contained. The fruit in all plants is the product or reſult of the flower, or that, for the production and nutrition of which the flower was intended. The ſtructure and parts of different fruits are different in ſome things; but in all the ſpecies, the eſſential parts of the fruit appear to be only continuations or expanſions of thoſe which are ſeen in the other parts of the tree, and the ſame fibres are continued to them from the root. An Apple cut into two tranſverſely, is ſeen to be principally compoſed of four parts. 1. A ſkin or rind, which is only a continuation and expanſion of the outer bark of the tree. 2. A parenchyma, or pulp, which is an expanſion and intumeſcence of the blea, or the inner bark of the tree. 3. The fibres, which are ramifications of the woody part of the tree. 4. The core, which is the produce of the pith of the wood, indurated or ſtrengthened by twigs of the woody fibres, intermixed with it. This ſerves to furniſh a proper lodging for the ſeeds, and filtrates the juices of the parenchyma or pulp, and conveys them to the ſeeds. Of the fibres there are generally reckoned fifteen branches, of which ten penetrate the parenchyma, and incline to the baſis of the flower, and the other five aſcend more particularly from the pedicle or ſtalk, and meet with the former at the baſe of the flower; and to theſe branches the capſules or coats of the kernels, are faſtened. Theſe branches being firſt extended through the parenchyma to the flower, furniſh the neceſſary matter for the vegetation of it; but as the fruit increaſes, it intercepts the aliment, and by this means the flower is ſtarved, and falls off. In a Pear there are five parts to be diſtinguiſhed: the ſkin, parenchyma, ramification, ſtone, and acetarium.

The firſt three parts are common to the Apple: the ſtone, obſerved chiefly in Choak Pears, is a congeries of ſtrong corpuſcles, which are diſperſed throughout the whole parenchyma, but in the greateſt plenty, and amaſſed cloſeſt together about the center of the acetarium. This ſeems formed of the ſtony or calculous part of the nutritious juice. The acetarium is a ſubſtance of a tart, acid taſte, and of a globular figure, incloſed in an aſſemblage of ſeveral of the ſtony parts before-mentioned. In Plums, Cherries, &c. there are four parts, the coat, parenchyma, ramifications, and ſtone. The outer part, or ſhell of the ſtone, ſeems formed of the calculous part of the nutritious juice of the plant, and the inner part, or kernel of the pith of the tree, derived thither by ſeminal branches, which penetrate the baſe of the ſtone. The Acorn conſiſts of a ſhell, cortex, and medulla. The ſhell conſiſts of a coat and parenchyma, derived from the bark and wood of the tree. The cortex conſiſts of an inner and outer part, the firſt of which is a duplicature of the inner trunk of the ſhell, the ſecond is a ſofter ſubſtance, derived from the ſame parenchyma of the ſhell. But authors are not agreed whether the medulla, or pulp of the kernel, does ariſe from the pith of the tree, or from the cortical part thereof. Berries, Grapes, &c. contain, beſides, three general parts, viz. coat, parenchyma, and ramification, grains of a ſtony nature, which are the ſeeds.

FRUMENTACEOUS, a term applied to ſuch plants as have a conformity with Wheat, called in latin Frumentum.

FRUTICOSE, ſhrubby, from *frutex*, a ſhrub. See SHRUB.

FUCHSIA, a genus of plants, of which we have but one known ſpecies.

This plant is a native of the warmeſt parts of America.

Culture of the FUCHSIA.

It is propagated by ſeeds, which muſt be ſown in pots, and plunged into a hot-bed of tanners-bark, and treated in the ſame way as other ſeeds from warm countries. In about a month or ſix weeks after the ſeeds are ſown, the plants will begin to appear; when they are about two inches high, they ſhould be ſhaken out of the pots, and ſeparated carefully, planting each into a ſmall pot, and plunged again into a hot-bed of tanners-bark, ſcreening them from the ſun, until they have taken new root: then they muſt have freſh air admitted to them, in proportion to the warmth of the ſeaſon. As the ſeaſon advances and becomes warm, the glaſſes of the hot-bed ſhould be raiſed higher, to admit a greater ſhare of air to the plants; and when the plants are grown ſo tall as to reach the glaſſes, they ſhould be removed into the bark-ſtove, and plunged into the tan-bed. In winter theſe plants require to be kept very warm, and at that ſeaſon they muſt not have much water, but in ſummer it muſt be often repeated, and have much air in warm weather.

FUMATORY, *Fumaria*, a genus of plants, ranged by Linnæus among the *diadelphia hexandria*, and of which there are eleven ſpecies. 1. Fumatory, with a naked ſtalk; or the Cucullaria. 2. Fumatory, with bilobated flowers behind, and a leafy ſtalk. 3. Fumatory, with a ſimple ſtalk, and bracteæ as long as the flowers. 4. Fumatory, with narrow pods, growing in panicles, and an erect ſtalk, called Baſtard Fumatory. 5. Fumatory, with narrow, four-cornered pods, and diffuſed ſtalks, with acute angles; or the Capnoides. 6. Fumatory, with three trifoliate leaves, and the ſmall leaves heart-ſhaped. 7. Fumatory, with the ſeed-veſſels growing in a racemus, containing a ſingle ſeed, and a diffuſed ſtalk; or the common Fumatory. 8. Fumatory, with ſeed-veſſels growing in a ſpike, containing one ſeed, an upright ſtalk, and filiform, or thread-like leaves. 9. Fumatory, with ſeed-veſſels growing in a racemus, containing a ſingle ſeed, and climbing leaves, with ſhort tendrils. 10. Fumatory, with narrow pods, and leaves with claſpers. 11. Fumatory, with globular, inflated pods.

The firſt three ſpecies are perennial plants: the firſt grows naturally in North America, the ſecond in Siberia, and the third in ſhady and woody places throughout Europe.

The other ſpecies of this genus are annual plants. The fourth ſort grows naturally in North America, and is a proper plant to grow on the ſides of grottos, or rock-work, where by its continuing green all the year, and its long continuance in flower, it has a good effect.

The fifth ſort is a native of France, Italy, and Mauritania, and the ſixth grows naturally in rocky places in Spain and Sicily; theſe plants are alſo proper for the joints of grottos, or any rock-work.

The ſeventh ſpecies is a native of Europe, and particularly of this country; the eighth ſort is a native of France, Spain, and Italy.

The ninth ſpecies is a native of France and England; and the tenth is alſo a native of rocky places in England. The eleventh ſort grows naturally at the Cape of Good Hope.

Culture of the FUMATORY.

The firſt three ſpecies are propagated by off-ſets from the roots, as they ſeldom ripen their ſeeds in this country; they require a ſhady ſituation and a light ſoil, and the roots ſhould be tranſplanted in autumn, ſoon after the leaves are decayed.

The fourth ſort is propagated by ſeeds, which, if it is permitted to ſcatter, will raiſe a new ſucceſſion of plants every year, without any farther care.

The fifth, ſixth, ſeventh, ninth and tenth ſpecies are rarely admitted into gardens.

The eighth ſort is only preſerved in botanic gardens, for the ſake of variety.

The eleventh ſort is propagated by ſeeds, which ſhould be ſown upon a moderate hot-bed, in the ſpring; and when the plants are fit to be removed, they muſt be planted in a ſmall pot filled with light earth, and plunged again into the hot-bed, where they muſt be ſhaded from the ſun till theyhave taken new root: after which theyſhould have a large ſhare of air admitted to them at all times, in mild weather, to prevent their drawing up weak; and as ſoon as the ſeaſon is favourable, they ſhould be inured to the open air, into which they may be removed the beginning of June, and planted in a warm border, where their ſtalks ſhould be ſupported by ſticks, to prevent trailing on the ground. In July the plants will flower, and continue a ſucceſſion of flowers, till the froſt deſtroys the plants. The ſeeds ripen in autumn.

FURZE, WHINS, GORSE, or SCORPION'S-THORN, *Ulex*, a genus of plants, ranged by Linnæus among the *diadelphia decandria*, and of which there are only two ſpecies. 1. Furze, with acute-pointed hairy leaves, and ſparſed ſpines; or the common Furze, Whins, or Gorſe. 2. Furze, with ſingle blunt leaves, and ſimple ſpines, terminating the branches.

The common Furze is well known to be a native of this country. The ſecond ſpecies is a native of Ethiopia.

Culture of the FURZE.

The firſt ſort is propagated by ſeeds, which were not many years ago frequently ſown to form hedges about fields; but as the Furze-hedges in a ſhort time became naked at the bottom, and as there were frequent gaps in the hedge, occaſioned by ſome of the plants often failing, the raiſing of theſe hedges has been of late diſcontinued.

The ſecond ſpecies is propagated either by layers or cuttings, but is too tender to live in the open air of this country; it is, therefore, preſerved by the curious in green-houſes, with the hardier ſorts of exotic plants.

* * *

G.

GALENIA, a genus of plants, for which there is no Engliſh name, and only one ſpecies.

It grows naturally at the Cape of Good Hope, and in other parts of Africa; it riſes with a ſhrubby ſtalk four feet high, ſending out many weak branches. The leaves are very narrow, placed irregularly, and of a light green, with a furrow running longitudinally through the middle. The flowers are produced in looſe panicles, from the ſides, and at the ends of the branches: they are very ſmall and have no petals.

Culture of the GALENIA.

This plant is propagated by cuttings, which if ſet during any of the ſummer months, and watered frequently, will take root in about five or ſix weeks. In winter they muſt be placed in the green houſe, with other hardy exotics, where they muſt have a large ſhare of air in mild weather, for they only require to be protected from the froſt. In ſummer they may be expoſed in the open air, with other plants of the ſame country.

GARCINIA, *Mangoſtan* or *Mongoſteen*, a genus of plants of which there is but one known ſpecies.

This tree grows naturally in the Molucca iſlands, and alſo in the inland parts of New Spain. It riſes with an upright ſtem twenty feet high, ſending out many branches placed oppoſite, which ſtand oblique to each other, not at right angles; the bark of theſe is ſmooth, of a grey colour, and that on the tender ſhoots is green. The leaves are ſpear-ſhaped and entire, of a lucid green on their upper ſide and of an olive colour on their under. The flower is compoſed of four roundiſh petals, which are thick at their baſe, but thinner toward their ends, and of a dark red colour.

The fruit which ſucceeds the flower is round, and the ſize of a middling orange. The ſhell is like that of the Pomegranate, but ſofter, thicker, and fuller of juice. The inſide of the fruit is of a roſe colour, it is divided into ſeveral parts by thin partitions, in which the ſeeds are lodged, ſurrounded by a ſoft juicy pulp of a delicious flavour. It is eſteemed one of the richeſt fruits in the world. The trees naturally grow in the form of Pyraboles, and their branches being decorated with large ſhining green leaves, make un elegant appearance, and afford a kindly ſhade in hot countries.

Culture of the GARCINIA.

There are but few of the ſeeds in this fruit which come to perfection, moſt of them which have been brought to Europe have failed; therefore the ſureſt way to obtain the plants is to ſow the ſeeds in tubs of earth in their native climate, and when the plants have obtained ſufficient ſtrength, they may be brought to Europe; but there ſhould be great care taken in their paſſage, to ſkreen them from the ſpray of the ſea, as alſo not to give them too much water, eſpecially when they arrive in a cool or temperate climate, for theſe plants are very impatient of wet.

When the plants arrive in Europe, they ſhould be carefully tranſplanted, each into a ſeparate pot, and plunged into the tan-bed, obſerving to ſhade them from the ſun till they have taken new root; then they muſt be treated in the ſame manner as other tender plants from hot countries.

GALLERIES, in gardens, are to be made in the following manner. A line is firſt to be drawn of the length the gallery is to be, and this is to be planted with Hornbeam, which is to be the foundation of the gallery. Theſe require no farther care than to be ſheared a little, and ſometimes digged about, as there may be occaſion. But the chief curioſity is in the ordering the fore part of the gallery and forming the arches. The pillars of the porticos, or arches, muſt be placed at four feet diſtance from one another, and the gallery muſt be twelve feet high, and ten feet wide that there may be room for three perſons to walk abreaſt in it. When the hornbeams are grown to the height of three feet, the diſtance of the pillars well regulated, and the ground-works of the gallery finiſhed, the next thing is to form the frontiſpiece. To perform which the Hornbeam muſt be ſtopt between two pillars at the height, and a trellis made for that purpoſe, muſt be run up, which forms the arch. As it grows up, thoſe branches which out-top the others muſt be levelled with the ſhears; and in time they will grow very ſtrong, and may be kept in regularity by the ſhears. Portico galleries may be covered with Lime-trees. Galleries in general have been always but lightly eſteemed in England; they were once very much in repute in the gardens of Italy, and other hot countries, but now they are got out of credit even there.

GARDEN, a plot of ground cultivated and properly ornamented with a variety of plants, flowers, fruits, &c.

The generality of writers upon this ſubject, and indeed moſt gardeners, in their practice, have, at leaſt till of late years, treated the pleaſure garden, the fruit garden, and the kitchen garden, as three quite diſtinct and ſeparate objects, not only in point of culture, but even of ſituation, ſoil, and incloſure. They are undoubtedly right as to the firſt: but we ſee no reaſon for disjoining the two laſt, unleſs it be in written accounts, where, for the ſake of greater order and perſpicuity, and for the conveniency of the reader, their ſeveral products, and the different ways of managing them, may with propriety be given ſingly, as will be the method here.

Flower GARDEN. This garden ſhould be placed in a properly conſpicuous part, where it may afford the greateſt entertainment to the eye. It ſhould therefore be placed next to, or juſt againſt, the back front of a houſe, from whence a deſcent of at leaſt three, but rather of ſix or ſeven, ſteps will ſingularly embelliſh the whole. Room ſhould be allowed for a ſufficiently extenſive lawn, which, if it be the firſt thing that ſtrikes the ſight, will have an elegant effect; for ſpacious walks, one of which ſo contrived as to be perfectly dry, and every now and then to lead to a ſhady place, or into plantations of ſhrubs, where a perſon may walk in private, ſhould ſurround the whole garden, were it only for the benefit of exerciſe. It ſhould have wilderneſſes, groves, greenhouſes, &c. and let the gardener be particularly careful to provide plenty of water for caſcades, fountains, and winding ſtreams, which laſt, if ſo conducted as to imitate nature, will give life and beauty to the whole, beſides being of neceſſary uſe for watering the ground. Statues and vaſes, judiciouſly diſpoſed, are alſo, here, pleaſing and proper objects: but neither theſe, nor any of the buildings in the garden, whether temples, grottos, alcoves, or other, ſhould by any means be too much multiplied or crouded.

The great art of laying out flower-gardens is to adapt their ſeveral parts to the natural poſition of the ground, ſo as to have as little earth to remove as poſſible; for this is often one of the greateſt expences in making of gardens: though it may with truth be affirmed, that, wherever it has been practiſed, nine times in ten it has proved the worſe; ſo that if, inſtead of levelling hills to form large terraces, ſtiff ſlopes, and even parterres, or ſinking of hollows and raiſing of hills, the ſurface of the ground had been only ſmoothed and well turfed, this would have produced a much better effect; and have been more generally approved, than the greateſt number of thoſe gardens which have been made with an infinite expence both of time and of money.

The boundaries of theſe gardens, whatever they are fenced with, ſhould be carefully hid by plantations of flowering ſhrubs, intermixed with Laurels and other evergreens, to conceal the fences, which have a diſagreeable look when they are left naked and expoſed. All the boundaries ſhould not be ſeen from any one point of view: and if the country around affords a variety of pleaſant proſpects, it will be right to bound the pleaſure garden by an ha-ha ditch and wall, to lay open thoſe views.

Kitchen and *Fruit* GARDEN. The chief things to be conſidered in the choice of a ſpot of ground for a kitchen and fruit garden are, the ſoil, the conveniency of water, the extents moſt proper to be incloſed, and the manner of incloſing it and laying it out.

If the gardener can chuſe his ſoil and ſituation for a garden, the former ſhould be rich, rather ſtiff than light and conſiderably deep. Nor is a moderate degree of moiſture here by any means an objection. The ſituation ſhould be nearly level; becauſe heavy rains would waſh away the richeſt part of the mould, if the declivity was conſiderable. If he has not a level ſpot near his houſe, the ground intended for the garden may be made into flats with terraces ſupported by ſtrong walls, which will become uſeful for fruit trees.

As warmth is eſſentially neceſſary to a garden, it is adviſeable that the expoſure of the ground intended for this purpoſe be to the ſouth-eaſt, or ſouth; and that it be protected from the north and north-eaſt, either by high grounds or plantations of lofty trees at a ſmall diſtance. Fruit trees require to be likewiſe protected from the ſouth-weſt and weſt, which are apt, in the autumn, to ſhake the fruit. The gardener ſhould here ſpare no trouble or expence to render his ſoil of a proper quality and depth: and if it be not naturally ſo, he muſt have recourſe to one or other of the methods practiſed for the improvement of ſoils, according to the nature of his ground.

Whatever the ſoil be, the mould in which the plants are to live and thrive ſhould be deep enough to afford their roots full room to extend themſelves. To allow therefore a ſufficiency of room, though perhaps more than may be really wanted, a depth of three feet of good mould ſhould be allotted them here; and if the ſoil underneath is clay, or retentive of water, which would be apt to chill the roots of plants, it will be right to exceed even this depth.

Trenching is the moſt effectual way to obtain a conſiderable depth of well-looſened mould. The common method of doing this, when the ſoil underneath is clay, is to begin with digging a trench four or five feet wide, either along or acroſs the whole ground: then to lay in the bottom of it, about half a foot thick, long dung, fern, leaves of trees, rotten ſticks, weeds, or any other ſuch like traſh, to rot and keep the ſoil from binding: then to fill this up with the earth dug out of the next adjoining trench, laying uppermoſt the ſpits that were loweſt, and ſo to continue till the work is finiſhed, without ever going deeper than juſt to the clay, though the ſurface be never ſo ſhallow. But if the clay be dug into, and part of it be turned up and mixed with the other earth, its bad qualities will ſoon be corrected by the influences of the air, rain, and one winter's froſts; it will become good and fertile mould, and the depth of the ſtaple will be increaſed thereby, eſpecially with the addition of a little drift ſand, coal, or other aſhes. The beſt time for trenching of land, that it may receive the benefit of being well mellowed, is the beginning of winter: when alſo, being moiſt, it is eaſy to dig.

When the mould on the ſurface is but ſhallow, and lies on a bed of ſand, gravel, or looſe earth, it will be adviſable to lay a layer of ſtiff earth, inclining to clay, at the bottom of the trench. This will be more eſpecially neceſſary for the growth of trees, or plants whoſe roots naturally pierce deep: for by means of this earth thoſe roots will ſpread horizontally in the mould, inſtead of ſtriking down, as they would otherwiſe do, into barren earth, which would immediately make the trees decay and become ſtinted. And another advantage attending this method will be, that as water cannot ſo eaſily deſcend through this ſtiffer ſoil, the earth will be thereby preſerved in a ſo much moiſter ſtate; yet even here the clay ſhould not be ſuch as is impervious to water; for this, unleſs it lie very deep, would be attended with as bad conſequences as the other extreme.

The general practice of gardeners is regularly to trench their ground, and lay it rough in the winter, without ſufficiently conſidering the quality of the ſoil, or the nature of the earth which lies underneath. But a little reflection would convince them of their error. Let us, in this light, ſee what is the effect of trenches in various ſoils. If the ground is naturally light, and lies in a bed of ſand or gravel. Does not too frequent trenching contribute to this loſs, as does likewiſe laying the ſurface rough in the winter, for the rains waſh the finer mould into the hollow places, from whence, the depth of the ſoil being leaſt there, it is moſt readily carried down into the looſe earth underneath. If the ſoil underneath is ſtiff, frequent trenching is proper, in order to bring back to the ſurface the rich mould that has been waſhed down: and if it be naturally ſtrong, the laying of it rough in the winter is an advantage, becauſe the winter's froſt will moulder its tough ſtrong particles.

The method of preparing the ground is, undoubtedly, expenſive: but its fertility afterwards will yield an ample reward.

Plenty of water is abſolutely neceſſary in this garden, and therefore great care ſhould be taken to provide it, in ſuch a manner that it may be come at as eaſily as poſſible. If a ſufficient ſupply of it can be obtained from the neighbouring grounds, two or three baſons ſhould be made in different parts of the garden, if it be a large one; for when the water is to be carried to a conſiderable diſtance, the expence attending this neceſſary buſineſs will be great, and there will be danger of the plants ſuffering for want of it. The ſize of theſe baſons ſhould be proportioned to the quantity of water that will be wanted, or with which they can be ſupplied: but their depth ſhould not exceed four feet, for fear of accidents, if people ſhould chance to fall into them: beſides which, deep water is not ſo well warmed and tempered by the ſun and air, as when it is ſhallow.

The methods uſed for collecting and preſerving of water in ponds or reſervoirs in the field, are equally applicable to the making and repleniſhing of theſe baſons in the garden. See the article BASON.

Where a ſupply of water for baſons and ponds cannot be obtained, wells muſt be dug, and it generally is adviſed, that the water taken out of them be expoſed to the ſun and air for ſome time, before it is uſed.

The ſize of this garden ſhould be in proportion to the wants of the family; but with a much larger allowance of ground than is uſually allotted, in order that the plants may be benefited by ſtirring the earth between them whilſt they grow. The great and manifeſt advantages of this practice, eſpecially in the culture of pulſe and garden plants, have been ſo evidently ſhewn by numbers of experiments related by many writers of undoubted credit, that it cannot be too often recommended as an object of the higheſt importance.

It ſhould be incloſed with a wall, either of brick or ſtone; but brick is beſt, for the greater conveniency of nailing up the fruit-trees which are to be planted againſt it. The thickneſs of theſe walls ſhould be proportioned to their height, which ſome run up to twelve or fourteen feet, or more: but nine or ten will be enough for almoſt any kind of fruit; and in this caſe thirteen inches, that is to ſay, a brick and an half, will be a ſufficient thickneſs; though two bricks will be better, for duration. Their inſide ſhould be built as ſmooth as poſſible, and, to ſtrengthen them againſt high winds, piers ſhould be run up with them, at the diſtance of about twelve or fourteen feet from each other according to the uſual extent of the fruit-trees for which they are intended. As to pears, which ſpread very wide, and frequently grow much above the height here mentioned, they do not require the aſſiſtance of a wall; unleſs it be ſome of the lateſt winter ſorts, and theſe the curious, who will be at the expence, may plant againſt walls built on purpoſe for them. Theſe piers may project ſix or eight inches on the outſide of the wall, for the ſake of greater ſolidity; and they ſhould advance about four inches on the inſide, for the convenience of fixing to them trelliſes, by building the wall on arches; and planting the trees at thoſe arched places; the trees will be thereby enabled to extend their roots underneath the wall; which will prove very advantageous to their growth.

If the quantity of walling which ſurrounds the kitchen garden be too little to furniſh the deſired ſupply of fruit, a croſs wall may be built through the middle of this ground; or, where the ſize of the garden will admit of it, there may be two croſs walls: but theſe walls muſt not by any means be leſs than eighty or an hundred feet aſunder.

The beſt aſpect of walls in England is ſuppoſed to have them point to the eaſtward of the ſouth; becauſe they will enjoy the benefit of the morning ſun, and be leſs expoſed to the weſt and ſouth-weſt winds, which are very injurious to fruits in this country, than thoſe which are built due ſouth. The next beſt aſpect is due ſouth; and the next to that ſouth-eaſt, which is preferable to the ſouth-weſt, for the reaſons before aſſigned; but as there will, for the moſt part, be ſouth-weſt and weſt walls in every garden, theſe may be planted with fruits which do not require ſo much heat to ripen them, as thoſe deſigned for the beſt walls, thoſe will only be proper for baking-pears, plums, and morello cherries for preſerving; or ſome duke cherries may be planted againſt theſe walls, to ſupply the table till peaches, nectarines, and plums are ripe. In what ever manner the walls are made, this garden ſhould be well ſheltered from the north and north-eaſt, by a diſtant plantation of high timber-trees, if nature has not otherwiſe provided a ſufficient defence from thoſe quarters.

In the diſtribution of this garden, particular care ſhould be taken to lay the walks out ſo as to obtain the greateſt convenience that can be for ſupplying each part of it with manure and water, and as eaſy acceſs as poſſible to its different quarters, which may be ſurrounded by a border planted with eſpaliers. Theſe walks ſhould be firm enough to bear at leaſt the weight of a loaded wheelbarrow, and wide enough for the convenient carriage of whatever there may be occaſion to bring into this garden, or to carry out of it.

The beſt walks for a kitchen garden are thoſe which are laid with a binding ſand; theſe are the eaſieſt kept of any: for when either weeds or moſs begin to grow, ſcuffling of them over with a Dutch hoe in dry weather, and raking them over a day or two after, will render them as clean as when they were firſt laid; or if they are covered with duſt taken from great roads, it will bind and become very firm.

If the ſoil is ſtiff and apt to retain water, narrow under-ground drains ſhould be made by the ſides of the walk, to carry off that wet; and where the ground is naturally moiſt, lime-rubbiſh, flints, chalk, or any other ſuch material as can be procured with the leaſt expence, ſhould be laid at the bottom of theſe walks; or if neither of theſe can be had, the ſand ſhould be laid thick upon a bed of heath or furze, and the water will drain through this, ſo that the walks will be firm and good in all ſeaſons.

The ſame means will alſo help greatly to drain away the ſuperfluous moiſture of the whole ground, if the ſoil ſhould be naturally too wet; for if they are not ſufficient, more under-ground drains may be made acroſs different parts of the garden, according to its declivity; for moſt kitchen plants are hurt by too much moiſture in winter; and trees never produce good fruit when their roots lie in water.

If each quarter of the kitchen-garden is to be encompaſſed by eſpaliers, the walks which divide thoſe quarters ſhould be ſix feet wide in ſmall gardens, and ten or twelve in extenſive ground. On each ſide of theſe walks the eſpaliers ſhould be planted in a border four or five feet wide. Theſe borders may be ſown with ſmall ſallading, or any other herbs that do not continue long or root deep, ſo that no ground need be loſt: and the continual ſtirring and manuring of it for theſe productions, will be of great ſervice to the roots of the trees.

The borders along the ſouth, and other walls that have a good expoſure, ſhould be at leaſt eight or ten feet wide, in order to allow the roots of the fruit-trees that are planted againſt them full room to extend themſelves. Such of theſe as face the ſouth, may be ſown for early crops of plants which do not root deep, and thoſe which are expoſed to the north, will do for late crops; but no deep rooting plant, eſpecially Peaſe and Beans, ſhould ever be placed too near the trees: though moſt gardeners are apt to tranſgreſs greatly in this reſpect, as well to preſerve their crops in winter, as to bring them forward in the ſpring, both which ends might be anſwered equally well, and without prejudice to their fruit-trees, by making reed-hedges in ſome of the warmeſt quarters, and ſowing cloſe to them their early Peas, Beans, &c.

A ſquare, or an oblong form will be moſt agreeable to the eye: but it matters not, in other reſpects, what ſhape the garden is of, eſpecially as all groſs irregularities may eaſily be hid in the laying of it out. Thus, when this is done, any of the ſlips cut off by the garden-wall, may, if large enough, and well expoſed to the ſun, be ſet apart for a place to make hot-beds for early Cucumbers, Melons, &c. If poſſible, this ſpot ſhould be near to the ſtables, for the convenience of ſupplying it with dung; and to have it without the wall, is certainly moſt eligible, as it will prevent a great deal of filth and litter in the garden, and remove from the noſe and eye an object which is not of the moſt pleaſing nature. If this ſlip is long enough to admit of an annual ſucceſſion of new beds during two or three years, they will be much better than when they are continued more than one year on the ſame ſpot; and as it will be abſolutely neceſſary this Melon-ground ſhould be cloſed round with a reed-hedge, it may be ſo contrived as to be moved away in pannels, in ſuch manner, that there will be no occaſion to ſhift any thing more than one of the croſs partitions, or fences, each year.

The importance of the precept, particularly here, will juſtify our mentioning again, that the dung-hill, ſet apart for this, or for any other purpoſe of gardening or agriculture, ſhould be carefully kept clear from weeds: for if weeds are ſuffered to ſcatter their ſeeds upon the dung, they will be brought into the garden, or other cultivated ground, ſhoot up, damage every crop of uſeful plants, and occaſion a perpetual labour to extirpate them.

Another caution which is abſolutely neceſſary to be obſerved, is to carry off all the refuſe leaves and ſtumps of Cabbages, the ſtalk of Beans, and haulm of Peas, as ſoon as they have done bearing: becauſe the ill ſcent which moſt people complain of in kitchen-gardens, is wholly occaſioned by theſe things being ſuffered to rot upon the ground. The leaves of Cabbages may be given to hogs, or other animals, while they are freſh, and the reſt of this traſh may be thrown upon the dung-hill, which it will help to enrich: or ſuch as will keep may be preſerved, to be thrown in the bottom of the trenches, in that part of the garden which is to be trenched the following autumn.

A too common neglect amongſt gardeners, is their letting the plants be on the ground, till they have ripened their ſeeds and wither, not conſidering that whilſt a plant is full of ſap, it preſerves the earth in a looſe ſtate, probably by means of the moiſture perſpired from its roots; but that, when permitted to ſtand till its ſeed is ripe, or the plant wither, it then leaves the impoveriſhed earth dry and hard, being itſelf become intirely void of ſap.

The moſt important points of general culture here conſiſt in good digging, keeping the ground clean, manuring the ſoil, and allowing proper diſtances between the plants, according to their ſeveral kinds and growths. But as the various productions of the kitchen, and thoſe of the fruit-garden require very different treatment, though in the ſame incloſure, it will be right, when you lay out a garden, to conſider them ſeparately.

Two eſſential rules to be obſerved in the general management of a kitchen-garden, are never to crowd the ground with more plants than it is able to nouriſh properly, and never to let any part of it remain unoccupied, for want of a due ſucceſſion of crops.

GARIDELLA, a genus of plants, of which there is but one ſpecies.

This plant is very near akin to the Fennel-flower, or Devil in a Buſh. It grows wild in Candia, and on mount Baldus: alſo in Italy and Provence. It is an annual plant, and riſes with an upright ſtalk, dividing into three or four ſlender branches. The leaves are very narrow, like thoſe of Fennel. The ſtalks are terminated by one ſmall flower, of a whitiſh colour, which is ſucceeded by three capſules, each containing two or three ſmall ſeeds.

Culture of the GARIDELLA.

It is propagated by ſeeds, which ſhould be ſown in autumn, on a bed of light freſh earth, where the plants are deſigned to remain. When they come up, they muſt be carefully cleaned from weeds, and where they are too cloſe, they muſt be thinned, leaving them about four or five inches apart. This is all the culture the plants will require; and if the ſeeds are permitted to ſcatter, the plants will come up without any farther care.

This plant flowers in June and July, and the ſeeds ripen in September.

GARLICK, *Allium*, a diſtinct genus of plants according to former botaniſts, but conſidered by Linnæus only as a ſpecies of the Allium, which according to him comprehends the Garlick, ſtrictly ſo called, the Onion, the Leek, and the Moly, and which he ranges under the *hexandria monogynia.*

Culture of GARLICK.

The common manured Garlick is propagated without any difficulty, by planting the cloves in the ſpring, in beds about four or five inches diſtance, and keeping them clear from weeds. The leaves ſhould be tied in knots about the beginning of June, to prevent their running into ſeed, which will greatly enlarge the bulb.

About the middle of July the roots ſhould be taken out of the ground, and hung up in a dry place for uſe. The ſeveral other ſorts of Garlick are very hardy, and will ſucceed in almoſt any ſoil or ſituation. They may be propagated from their roots or ſeeds: if from the roots, the beſt time is autumn, and the ſeeds may be ſown on a border of common earth, either in autumn, ſoon after they are ripe, or the ſpring following: after which they will require no other care, but to keep them clear from weeds till the autumn, when the plants may be tranſplanted into the borders, where they are to remain for good.

GENERATION *of Plants.* The impregnation of the female Palm-tree by the male, has been known in the moſt ancient times. Herodotus, the father of hiſtory, tells us, that the Greeks called ſome of theſe trees male, the fruit of which they bound to the other kind, which bears Dates; that the ſmall flies, wherewith the male abounded, might aſſiſt in ripening the fruit of the female tree. The remote age in which Herodotus wrote, ſufficiently apologizes for his believing, that what was really brought about by the farina fœcundans of the male flower, was to be attributed to the inſects frequently found therein, and which perhaps frequently carry this farina from the male to the female. The proceſs of the impregnation, according to Theophraſtus, was this: while the male plant was in flower, they cut off a branch of theſe flowers, and ſcattered the duſt up and down therein upon the flowers of the female plant; by which means the female did not caſt her fruit, but preſerved them to maturity. This has been lately verified at Berlin, where a female Palm-tree bore fruit for many years; but the fruit never ripened, and when planted did not vegetate, merely becauſe there was no male Palm in the place: for having procured a branch of male flowers from Leipzic, twenty German miles from Berlin, they ſuſpended it over the female flowers of their tree; and the experiment ſucceeded ſo well, that the female tree produced more than an hundred perfectly ripe fruit; and the experiment being repeated it bore above two thouſand ripe fruit, which being planted produced young trees.

It is in the flowers of vegetables only, that the parts ſubſervient to generation are produced; and theſe flowers are either male, female, or hermaphrodite. Male flowers are thoſe poſſeſſed of the organs of generation, analagous to the male parts of animals; ſuch are the ſtamina and apices, called, by Linnæus, filaments and antheræ. The female flowers are only endowed with parts like thoſe, which perform the office of generation in females; and theſe are the piſtil and its appurtenances, which Linnæus divides into three parts, the germen, ſtyle, and ſtigma. The hermaphrodite flower, which conſtitutes the great bulk of the vegetable creation, is poſſeſſed of all theſe parts in itſelf, and is therefore capable of propagating its ſpecies without any foreign aſſiſtance; which, by many inconteſtable experiments, it has been found neither the male nor female flower ſimply is able to do. The impregnation of hermaphrodite flowers may be performed within their own calyx; but before a ſeparate female flower can be ſo, the farina fœcundans of the male flower muſt neceſſarily be conveyed to it thro' the circumambient air; which is the reaſon why the quantity of the produce of ſuch plants is much more precarious, than that of plants which have hermaphrodite flowers: for if, during the flowering of theſe ſeparate male and female plants, the weather proves either very wet or ſtormy, their produce of fruit will be very inconſiderable, from the ſpoiling or haſty diſſipation of the male farina. Thus, independent of froſts, the fruit of the Nut and Filbert-tree will be moſt numerous in thoſe years, in which the months of January and February are the leaſt ſtormy and wet, becauſe at that time their flowers are produced. For the ſame reaſons, a ſtormy or wet May deſtroys the cheſnuts; and the ſame weather, in July, prodigiouſly leſſens the crop of Maiz, or Indian corn, as its ſpikes of male-flowers ſtand lofty, and at a conſiderable diſtance from the female.

Some of the more ſkilful modern gardeners put in practice, with regard to Melons and Cucumbers, the very method mentioned by Theophraſtus two thouſand years ago, in regard to the Palm-tree. As theſe plants, early in the ſeaſon, are in this climate confined to frames and glaſſes, the air in which they grow is more ſtagnant than the open air; whereby the diſtribution of the farina fœcundans, ſo neceſſary towards the production of the fruit for the propagation of the ſpecies, is much hindered. To obviate the inconvenience thence ariſing, they collect the male flowers when fully blown; and preſenting them to the female ones by a ſtroke of the finger, they ſcatter the farina fœcundans therein, which prevents the falling of the fruit before it is ripe.

By far the greater part of plants produce hermaphrodite flowers; but ſome there are which have ſeparate male and female-flowers growing from the ſame root, as Maiz, Nettles, Box, Elm, Birch, Oak, Beach, Hazel, Hornbeum, Plane-tree, Pine, Fir, Cypreſs, Cedar, Melons, Cucumbers, Gourds, and ſeveral others: in many of theſe, the male and female flowers ſtand at a conſiderable diſtance. There are other plants which produce thoſe neceſſary organs upon different roots, as the Palm-tree, Hops, the Willow-tree, Miſletoe, Spinach, Hemp, Poplar, French and Dog's Mercury, the Yew-tree, Juniper, and ſeveral others. Among theſe, the Valiſniera of Linnæus, as to the manner in which its male-flower impregnates the female, is one of the moſt ſingular prodigies in nature. It grows in rivulets, ditches, and ponds, in many parts of Europe. The male plant, which is continually covered with water, has a ſhort ſtalk, upon the top of which its flowers are produced. As this top never reaches the ſurface of the water, the flowers are thrown off from it, and come unopened to the ſurface of the water; where, as ſoon as they arrive, by the action of the air, they expand themſelves, and ſwim round the female flowers, which are blown at the ſame time. Theſe laſt have a long ſpiral footſtalk, by which they attain the ſurface of the water, and remaining there in flower a few days are impregnated by the male flowers detached from the ſtalks at the bottom.

It is obſervable, that the operations of nature are carried on moſt uſually by certain general laws, from which however ſhe ſometimes deviates. Thus almoſt all plants have either hermaphrodite flowers, or male and female flowers growing from the ſame root, or male and female flowers from different roots; but there are a few of another claſs, which from the ſame root furniſh either male hermaphrodite flowers, or female and hermaphrodite ones: of this kind are the Mulberry-tree, the Muſa, or Plantane-tree, White Hellebore, Pellitory, Arrach, the Aſh-tree, and few others.—*Watſon*, in Phil. Tranſ. Vol. 47. p. 169—183.

Some object to this theory of the generation of plants, from having obſerved ſome vegetables, which were termed female, growing ſingly; and though at a very great diſtance from any male plants of the ſame kind, producing perfect fruits, which grew when ſown. Mr. Miller tells us, he himſelf was ſtaggered in his opinion, on having obſerved a female plant of White Briony, which grew ſingly in a garden, where there were no other plants of the ſame kind; which, nevertheleſs, for ſeveral years, produced berries, which grew and flouriſhed perfectly well. This put him upon examining the plant more carefully than he had done before, when a great many male-flowers were found intermixed with the female ones; and he adds, that he has frequently obſerved the ſame in many other plants, which are generally male and female in diſtinct plants, yet have ſometimes both ſexes on the ſame plant.

From what has been ſaid, it appears very plain, that the embryo of the female flower muſt be impregnated by the farina fœcundans, or male duſt, in order to render the fruit perfect; but how, or in what manner, it is performed, is what we can only gueſs at; ſince, in the generation of animals, our greateſt naturaliſts differ widely, as has been often ſhewn, in their opinions concerning the particular method how it is performed. If, ſays the reverend Dr. Hales, I may be allowed to indulge conjecture, I would propoſe it to the conſideration of naturaliſts, whether, from the manifeſt proof we have that ſulphur attracts air, a hint may not be taken to enquire whether this may not be the primary uſe of the farina fœcundans, to attract and unite with itſelf, elaſtic or other refined active particles. That this farina abounds with ſulphur, and that a very refined ſort, is probable from the ſubtle oil which chemiſts obtain from the chives of Saffron: and if this be the uſe of it, was it poſſible that it could be more aptly placed than on the ſlender points of the ſtamina, where it might eaſily, with the leaſt breath of wind, be diſperſed in the air; thereby ſurrounding the plant, as it were, with an atmoſphere of ſublimed ſulphureous pounce? Theſe uniting with particles of air, may, perhaps, be inſpired at ſeveral parts of the plant, and eſpecially at the piſtil, and be thence conveyed to the capſula ſeminalis. And if to theſe united ſulphureous and aerial particles, we ſuppoſe ſome particles of light to be joined (for Sir Iſaac Newton has found that ſulphur attracts light ſtrongly); then the reſult of theſe three by far the moſt active principles in nature will be a punctum ſaliens, to invigorate the ſeminal plant: and thus we are at laſt conducted, by the regular analyſis of vegetable nature, to the firſt enlivening principle of their minuteſt origin.

GENTIAN, or FELLWORT, *Gentiana*, a genus of plants, ranged by Linnæus among the *pentandria digynia*, and of which he enumerates no leſs than twenty-three ſpecies, too many to meet with a particular deſcription in this work; nor is it neceſſary, as all that are admitted into gardens require much the ſame culture.

Culture of the GENTIAN.

Almoſt all the ſpecies of the Gentian are natives of different parts of Europe. Some grow naturally in England, and a few are natives of America. Some are annual plants, but the greateſt part of them have perennial roots. Theſe are propagated by ſeeds, which ſhould be ſown in pots ſoon after they are ripe: the pots muſt be placed in a ſhady ſituation, and kept clear from weeds: in ſpring the plants will come up; they muſt be duly watered in dry weather, and kept clean from weeds, and in the following autumn, ſhould be carefully ſhaken out of the pots, and planted in a ſhady border of loamy earth, at the diſtance of ſix inches apart. In this border the plants may ſtand two years, by which time they will be fit to tranſplant where they are deſigned to remain; therefore, in autumn, ſo ſoon as their leaves decay, let them be dug up with ſuch care, as not to injure their roots, and planted in their places; after which they will require no other culture, but to dig the ground about them early in the ſpring, before they begin to ſhoot, and in ſummer, to keep them clean from weeds.

The roots of theſe plants will continue many years, but the ſtalks decay every autumn. The ſame roots do not flower two years together, nor ſeldom oftener than every third year; but when they flower ſtrong, they make a fine appearance.

GENTIANELLA, a ſpecies of Gentian. See the laſt article.

GERANIUM, *Crane's Bill*, a genus of plants ranged by Linnæus among the *monadelphia decandria*, and of which he diſtinguiſhes thirty-nine ſpecies. Miller enumerates forty-three, and Tournefort ſeventy eight; too great a number to be all inſerted in this work.

Several ſpecies of this plant are natives of England, and are troubleſome weeds in a garden; others grow naturally in France, Italy, Spain, and Germany, and are preſerved in botanic gardens for the ſake of variety; but, as they are plants of little beauty, they are rarely admitted into other gardens. There are alſo ſeveral African ſpecies of this genus preſerved in various gardens, where there is a conveniency to ſcreen them from the froſt in winter.

The common wild ſort of this plant, and thoſe alſo which are brought to the curious from the colder climates are hardy enough, and require little care; but the African ſpecies, and the others from hot countries, which make ſo very beautiful a figure in our green houſes, require great care in their culture and propagation.

African GERANIUM. This plant has every recommendation to the curious which beauty of flower, fragrance, and a peculiar elegance can give it.

It is a ſhrubby but tender plant, three feet high, and irregularly, but not inelegantly ſpreading in its branches. The leaves are large and roundiſh but they are heart-like at the baſe, and indented at the edge; they are diſtinguiſhed by an elegant and conſpicuous zone carried all round them: the flowers ſtand in large tufts placed in the ſummits of long foot-ſtalks, and they are large and of a beautiful red. The ſeed-veſſel is long, ſlender, and ſharp-pointed; it reſembles the beak of a crane, and the whole genus has thence obtained the Engliſh name of *Cranes-Bill*.

There are beſide this a number of other African Geraniums, which we ſhall particularize hereafter: and as they are all to be raiſed by the ſame kind of culture, we ſhall deliver the method of it at large.

Culture of the African GERANIUM.

The ſoil, in their native place of growth, is ſo unlike what we have uſually in gardens, that the care of their culture muſt be begun farther back than is needful for many other plants.

The cuſtom is to raiſe them in pots of good mould, and they will be very beautiful that way; but in the method we ſhall propoſe they will rival the glowing beauty they diſplay in their natural climate. There they grow principally where the ground is warm, dry, and light, and yet has ſome richneſs.

About Auguſt, let an artificial ſoil be prepared for theſe plants, thus: Pare off the ſurface of ſome ground on which an old ſtock of wood has ſtood, and take only what is light and mellow; to one load of this add two loads of good garden mould, and a load and a half of middling ſand, and half a load of burnt graſs turf: mix all theſe well togethar with ſpade and rake, and pile the whole in a ridge, and let it thus lie till the month of January. Then let it be thoroughly dug up and turned, and thrown together in a ridge again, where it is to lie till the ſucceeding ſummer, the time of uſing it.

During this interval, if weeds appear upon it, they muſt be cut down with a hoe, for they will exhauſt it; and the intent is, that all its richneſs ſhould go to the nouriſhment of the plant.

The artificial ſoil being thus prepared, the method of propagating the plants comes under conſideration. Their ſeeds do not often come to a perfect maturity with us, and the cuttings grow eaſily; for this reaſon it is beſt to uſe them for propagation; and a larger number of plants may be raiſed this way with ſpeed and ſucceſs in the following manner:

Chuſe a part of the nurſery which is warm and well ſheltered, and is not too much expoſed to the ſun: here prepare a bed four foot and a half wide, of what length you pleaſe, and let it have a foot and a half depth of the fineſt mould. Let the mould lie half a foot within the ground, and a foot above it, and let it be well broken and laid perfectly even: at diſtances place hoops, that the whole may, on occaſion, be covered with matting; and on the ſurface draw lines for planting the cuttings at two feet diſtances row from row, and two and a half in the rows.

Towards the end of May is the time for this work; and when the bed is thus prepared, let cuttings be taken carefully from ſome good kinds of Geranium, and from the moſt flouriſhing plants. Theſe muſt be immediately placed in the mould, five inches deep, and well ſet; then give the bed a watering, and draw the mat over it. At ſun-ſet let the mats be taken off, and ſo every night; only drawing it on an hour after ſun-riſing in the morning; this will give them the advantage of the dews; and they are to be uncovered in the ſame manner in the day, whenever there falls a moderate ſhower: they muſt alſo be watered frequently and moderately, as the condition of the ground requires; and, by this practice, in five weeks they will take good root.

If the cuttings were planted the third week in May, they will have taken tolerable root at the lattter end of June; and they will, in a month more, have ſhot ſo many additional fibres, that they will be in a condition to remove: therefore, the laſt week in July will be the proper time for that operation.

The artificial ſoil is now to be once again very well worked over; and the pots, into which the Geraniums are to be put, muſt be filled with it: theſe ſhould be of a middling ſize. Bring them to the bed, and after ſun-ſet plant in the young Geraniums: each is to be taken up carefully, with as much earth to the roots as will hang about them; in this condition it is to be ſet upright in the middle of the pot, which is to be half emptied for that purpoſe: then the remainder of the artificial ſoil is to be carefully put in, and cloſed about the plant. When they are thus fixed in the pots, they muſt have a gentle watering; and the pots muſt be ſet upon the bed where the plants ſtood, and in the morning the mat drawn over them. They muſt be managed exactly as the cuttings were, when firſt put into the ground, till they are very well rooted in the pots: they muſt then be brought out into a more open place, and watered occaſionally as the condition of the earth requires. About ten days fixes them very well in their pots ; and they are then to ſtand out till the end of Autumn, at which time they are to be carried into the green-houſe. They muſt then be ſet in the moſt airy place, and not ſheltered by larger plants. They muſt have now and then a little water, and the ſurface of the earth muſt be ſtirred once in a month. In ſummer, when they are ſet out, the earth ſhould be taken off two inches deep, and its place ſupplied by a freſh parcel of the ſame artificial ſoil.

Purple GERANIUM, with *auriculated leaves.* This plant adds ſingularity in the manner of its growth, to the common character of elegance, and therefore merits, on more accounts than one, a place among the exotics we raiſe in our gardens.

The root is white and fibrous : the leaves riſe from it in cluſters, and ſpread themſelves with a pleaſing irregularity upon the ground ; each has its ſeparate long foot-ſtalk, which is naturally of a whitiſh green, but often reddiſh ; the leaves vary among themſelves, ſome are ſimple, and others formed, as it were, of three parts ; the ſimple leaves are oblong, broad, obtuſe, and irregularly dented at the edges : the others are of the ſame form, but they have beſide, a couple of ſmall leaves at their baſe ; they are all of a beautiful green, and make a handſome appearance. The ſtalks riſe in the tuft, and they are low and naked, about ten inches is their uſual height : and at the top there burſt from a divided general cup, many ſlender ſeparate pedicles, each ſuſtaining a ſingle flower ; the whole cluſter forms a kind of round umbel, and is very regular and handſome ; each flower is large and of a ſhining purple, with a tinge of ſcarlet. The ſeeds are gathered into a crane-like head, as in the other Geraniums, and theſe are conſiderably large in proportion to the plant.

Culture of this GERANIUM.

This is a ſpecies which muſt be raiſed from ſeeds, and the choice lies between thoſe ripened on plants at home, and ſuch as may be imported from Africa. There need be but little ſaid of the preference that is to be given to the African ſeeds, when they can be had freſh ; but thoſe the plants ripens here will produce it, and it may be propagated alſo by parting the root ; the ſeeds, whether obtained from abroad, or ripened here, muſt be ſown in February, in pots of a compoſt made with equal parts of garden-mould and wood-pile earth ; theſe muſt be ſet in a bark-bed : and when the plants have a little height, they muſt be tranſplanted into ſeparate pots, in which they are to remain ſome time in another hot-bed ; after this, they muſt by degrees, be hardened, and then ſet out among the exotics which bear the free air of our ſummers ; they will uſually, with good management, flower the firſt year, and they ſcarce ever miſs the ſecond. They are to be preſerved in winter in the green-houſe, and require no other care than what is beſtowed upon all other plants placed in thoſe buildings.

Vine-leaved GERANIUM. This is a very elegant and fragrant flower.

The root is roundiſh, brown, and full of fibres. The firſt leaves riſe in numbers, and theſe are ſupported on long thick hairy foot-ſtalks : theſe are ſometimes purpliſh, but naturally green : and the leaves are alſo of a fine bright green ; they are large, broad, deeply divided in ſeveral places, not unlike ſome kinds of Vine-leaves : they are highly ribbed and lightly hairy. Frequently at their baſes there ſtands one or two little appendages, but this is not conſtant.

In the centre of this tuft of leaves riſes the ſtalk, which ſupports the flowers. This is round, thick, hairy, purpliſh at the bottom, and on the upper part green. The flowers ſpread out in very elegant tufts, and they are in themſelves large and beautiful. Their colour, in the middle part of the petals, is a delicate red, but the edges of them are naturally of a pale yellow. They are placed on hairy foot-ſtalks, ſingly ſometimes, but oftener in cluſters : and they are ſucceeded by long beaks, in the manner of the other plants of this ſingular kind.

Culture of the Vine-leaved GERANIUM.

A proper compoſt for this plant muſt be made as follows : take two barrows of mould, from a fertile but dry paſture, one barrow of earth from under an old wood-pile, and half a barrow of large coarſe ſand ; mix theſe well together, and throw it up in a heap ſeveral months before it is wanted ; keep it clear from weeds by frequent turnings.

If poſſible, procure ſeeds from Africa, but in other caſes let the beſt of thoſe it ripens here, be carefully preſerved during winter, and in ſpring they ſhould be ſown upon a well covered hot-bed, and buried half an inch. The plants will ſoon come up ; and when they have acquired a little ſtrength, they muſt be removed into another, and ſet at greater diſtances. In this they muſt be ſhaded and watered to promote their rooting, and when they are ſomewhat more advanced in bigneſs, removed into pots. Common mould ſerves very well the purpoſe of covering the two hot-beds : but the compoſt prepared for them muſt be now put into the pots.

Firſt let ſome pebbles be laid in the bottom of the pot, then let it be half or more, filled with the compoſt : and being thus prepared, let the plants be taken up one by one, with as much of the mould as will hang to the roots, and ſet upright in the pots. Let more of the compoſt be poured in to fill them up to a proper height, and the plants ſecured upright : then give them a gentle watering, and place them either in a bark-bed that has but little heat, or under a common hot-bed frame to help their rooting. Here they muſt be covered, ſhaded, and watered, till well rooted again : and after that the glaſſes muſt by degrees be raiſed more and more, in the heat of the day, to harden them : and they muſt afterwards be ſet out among the green-houſe plants.

They will flower, with good managemont, the firſt year ; they muſt be taken in at the approach of winter, and they will every year afterwards flower ſtronger and ſtronger : and will, in time, produce off-ſets from their roots, which being nurſed up with the ſame care as the ſeedling plants, will ſooner come to the full glory of their flowering. They will always flower the beſt when they have moſt free air.

Crimſon Papilionaceous-flowered GERANIUM. This plant is ſingular and elegant in the higheſt degree, and worthy a place in the beſt collection.

The root is tuberous and brown : round, and of the ſize of a Turnep. The leaves that riſe firſt from it are large and very beautifully divided : they have long, hairy, reddiſh foot-ſtalks, and they are cut into numerous narrow ſegments ; their colour is a beautiful pale green. In the centre of a large tuft of theſe, riſes the ſtalk, which ſupports the flowers ; it is united with ſome of the inner ones at its baſe, but all the way from thence it is naked ; it is purpliſh at the bottom, of a whitiſh green toward the top, and hairy. The flowers terminate this in a kind of umbel, they are very large, and of an elegant pale crimſon : they ſtand on long and ſlender foot-ſtalks, a part of their petals hanging down, and the reſt ſtanding erect ; each flower has the aſpect of the Papilionaceous kind. In the centre appear the tops of the ſtyle, which is alſo of a fine crimſon, and adds not a little to the elegance of the flower.

The more attentively the flower is examined the more it pleaſes. The cup in which it ſtands, is formed of a ſingle leaf, and divided into five ſegments. The body of the flower is compoſed of five perals, and of theſe, three are turned up in the ſame manner we have mentioned, and the other two hang down, which gives an air of ſingularity to the flower. Mentioning the colour to be throughout crimſon, is deſcribing it in the moſt perfect ſtate, for it is frequently white ; but even in that caſe it is not without its beauty ; for at the part where the lower petals droop, it is ſtained with two large and elegant ſpots of crimſon.

Culture of the Papilionaceous GERANIUM.

This plant is a native of Africa, where it ſpreads its leaves over the dry earth, by the ſides of foreſts, in a pleaſing luxuriancy. The ſoil in theſe places is a light ſandy loam, enriched by the rotted branches of the trees. This points out the compoſt that is to be given it in our gardens.

For this purpoſe bring in a barrow of light ſandy earth from under the turf in a common paſture: mix with it a buſhel of earth from under an old wood-pile, and add a peck of the compoſt ſand: let this be prepared ſeveral months before it is uſed, and turned frequently, that no weeds may grow upon it, and that it may have all the advantage of ſun, air, and rains.

There are two methods of propagating this plant, the one by parting the roots, the other by ſowing. The way by off-ſets from the root is eaſieſt and moſt expeditious; but this is a kind which produces thoſe off-ſets ſlowly. It ripens its ſeeds very well with us, and therefore that is the beſt way of procuring its encreaſe. Early in ſpring let theſe be ſown upon a hot-bed, ſcattering a few at a diſtance, one from another, and covering them a quarter of an inch with fine mould.

When the plants appear, pull up the weakeſt, leaving only about half a dozen, and theſe at a good diſtance; thus they may ſtand till they have ſome little height, then they muſt be removed into another hot-bed: and after being ſome time in that, tranſplanted into pots filled with the compoſt. Theſe pots muſt be ſet in a hot-bed frame, and watered carefully; they muſt alſo be ſhaded till well rooted, and then hardened to the air by degrees.

When the ſummer is advanced, they muſt be ſet out among the exotics, and at the approach of winter taken into the green-houſe. Some of theſe ſeedling plants will bear crimſon, and others white flowers.

There is no way to be ſure of the colour of the flowers but by off-ſets from their roots, and theſe, when they can be had good, deſerve the preference; they muſt be planted ſingly in pots of the ſame compoſt, and after one gentle watering, ſet in a ſhady place. When they begin to ſhoot, they muſt be brought where there is a more free air, and ſome ſun, and from that time watered gently once in two days.

They will quickly come forward under this management; and they are then to be brought out among the exotics for the remainder of the ſummer, and afterwards treated in all reſpects as the others.

Tree GERMANDER, *Teucrium*, a genus of plants, of which there are nineteen ſpecies. 1. Tree Germander, with heart-ſhaped waved leaves, which are bluntly ſawed, thoſe between the flowers ſpear-ſhaped and entire, and a ſhrubby ſtalk; or common Tree Germander. 2. Tree Germander, with oval crenated leaves, thoſe between the flowers ſpear-ſhaped and entire, and a ſhrubby ſtalk, or ſhrubby Alpine Tree Germander, with ſhining leaves. 3. Tree Germander, with entire, oblong, oval leaves, having foot-ſtalks, ſmooth above, and hoary underneath; or Spaniſh Tree Germander. 4. Tree Germander, with entire leaves, which are hairy, ſhaped like an acute Rhombus, and woolly on their under-ſide. 5. Germander, with many pointed leaves, and flowers growing ſingly. 6. Germander, with many pointed leaves, and flowers growing in whorls by threes. 7. Germander, with oval leaves on foot-ſtalks, with crenated cuts, and flowers growing almoſt in whorls; or ſmaller creeping Germander. 8. Germander, with oval leaves, which are pointed at both ends, ſaw-indented toward their points, and flowers growing in bunches. 9. Germander, with oblong, oval leaves, which are acute-pointed, jagged and crenated, and have flowers growing almoſt in whorls; or greater creeping Germander. 10. Germander, with oval, woolly leaves, which are obtuſely crenated, thoſe among the flowers entire, and the empalements of the flowers ending in acute points. 11. Germander, with oblong, oval leaves, which are ſawed toward their points, hairy, and hoary on their under-ſide, ſitting cloſe to the branches, and flowers growing almoſt in whorls; or hoary Alpine Germander. 12. Germander, with heart-ſhaped, ſawed leaves, having foot-ſtalks, many long bunches of flowers growing from the wings, and an upright ſtalk; or Wild Sage. 13. Germander, with oblong, ſaw-indented leaves, ſitting cloſe to the branches, and flowers growing by pairs at the wings of the ſtalk, which is diffuſed; or Water Germander. 14. Germander, with oval entire leaves, which are pointed at both ends, and hairy bunches of flowers; Syrian Maſtick, or common Marum. 15. Germander, with linear, trifid, entire leaves, and flowers ſitting cloſe, growing out of the wings of the branches; or common Ground Pine. 16. Germander with the moſt hairy linear leaves, which are indented toward their points, and flowers ſitting cloſe to the wings of the ſtalk; or Muſk Ground Pine. 17. Germander with linear, woolly, entire leaves, and flowers ſitting cloſe to the branches, or Muſk Ground Pine with entire leaves. 18. Germander with oblong, oval leaves, which are bluntly indented, and flowers placed ſingly at the wings of the ſtalks, having acute impalements. 19. Germander with oval ſpear-ſhaped leaves which are unequally ſawed, and long bunches of flowers ſpringing from the wings, and terminating the ſtalks, and inflated impalements.

The firſt ſpecies grows naturally in the ſouth of France, in Spain and Italy; it riſes with a ſhrubby ſtalk two or three feet high. The leaves are heart-ſhaped, a little waved, and bluntly ſawed on their edges, and of a lucid green on their upper ſide, but a little hoary on their under, ſtanding upon ſhort footſtalks. The upper part of the branches, for ſix or eight inches in length, are adorned with flowers, which come out from the wings of the ſtalk, two or three ſtanding on each ſide at every joint; they are of a dingy white colour, and ſtand upon ſlender footſtalks; under each of theſe whorls ſtand two ſmaller leaves, which are entire and concave.

The ſecond ſort grows naturally on the Alps, but in the lower parts, where the cold is not very ſevere, and generally on moiſt ground; this has a ſhrubby ſtalk like the former, and riſes about the ſame height. The ſtalks are covered with a ſhort hairy down; the lower leaves are oval, crenated, and of a lucid green on their upperſide, but a little hoary on their under; the leaves between the flowers are ſpear-ſhaped and entire. The ſpikes of flowers are much longer; the flowers are larger, and their colour more inclining to a yellow than thoſe of the former.

The third ſpecies grows naturally in Spain and Sicily, near the borders of the ſea; this riſes with a ſhrubby branching ſtalk, ſix or eight feet high, covered with a hoary bark. The branches are decorated with ſmall oval leaves, placed oppoſite, ſitting cloſe to them; they are ſmooth on their upper ſide, of a lucid green, but their under ſides are hoary. The flowers come out ſingly from the wings of the ſtalk at the upper part of the branches. one on each ſide ſtanding upon ſhort footſtalks; their empalements are ſhort and hoary. The flowers are blue. This plant ſeldom produces good ſeeds in England.

The fourth ſort grows naturally in Spain; this has a great reſemblance of the third, but the branches ſpread more horizontally. The leaves are ſometimes heart-ſhaped, and at others in form of a rhombus; the lower leaves, which are the largeſt, are an inch and a half long; and three quarters of an inch broad; the upper are ſmaller, and of a different ſhape; theſe are downy on both ſides, but the lower leaves are only ſo on the under. The flowers come out at the upper parts of the branches in like manner as the former, but are larger, and of paler blue colour.

The fifth ſort grows naturally in Spain and Italy, upon moiſt ground. The ſtalks of this are herbaceous and trail upon the ground; they grow about a foot in length, and the leaves are cut in many points almoſt to the midrib; they are ſmooth, ſtand oppoſite, and their colour is a deep green. The flowers are white, and come out on each ſide the ſtalks ſingly; theſe are ſucceeded by four ſeeds which ripen in autumn.

The ſixth ſpecies grows naturally in the ſouth of France, Italy, and Germany, in the corn fields; it is an annual plant which periſhes ſoon after the ſeeds are ripe.

The ſtalks are four-cornered, hairy, and about a foot long. The leaves are placed oppoſite at every joint, they are hairy, and almoſt cut to the midrib; the ſegments are cut into three points. The flowers are placed at the wings of the ſtalks in whorls, three ſtanding together on each ſide upon ſhort footſtalks. They are white and ſhaped like thoſe of the other ſpecies. The ſeeds ripen in Auguſt and September.

The ſeventh ſpecies grows naturally in the ſouth of France, and in Germany; this has a creeping fibrous root, which ſpreads in the ground, and multiplies greatly; ſending out many four-cornered hairy ſtalks, which are eight or nine inches long, having a few ſhort branches, decorated with oval leaves, which are deeply crenated on their borders; they ſtand upon footſtalks; and are of a green above, but hoary underneath. The flowers grow from the wings of the ſtalks, towards the upper part almoſt in whorls, ſtanding chiefly to one ſide of the ſtalk; they are of a reddiſh colour, and the lower tip turned inward. The ſeeds ripen in autumn.

The eighth ſort is a native of Spain, this is a perennial plant, having ſome reſemblance of the former, but the roots do not creep. The ſtalks are taller and more erect. The leaves are narrower, pointed at both ends, and not ſo deeply indented, but the indentures are ſharper. The flowers decorate the ſtalks great part of their length, they grow in bunches, are longer than thoſe of the former, and of a bright red colour.

The ninth ſort is a native of Italy; this is like the ſeventh ſort, but the ſtalks riſe nearly twice the height of thoſe, and ſend out a greater number of branches. The leaves of this are more acutely indented on their edges; they are hairy, of a light green on their upper ſide, and hoary on their under. The flowers grow almoſt in whorls from the wings of the ſtalks, to which they ſit very cloſe. They are ſometimes red, and at others white, and both colours are often on the ſame plant.

The tenth ſort grows naturally in the iſland of Crete, and alſo about Nice in Italy; this is a perennial plant with a low ſhrubby ſtalk, ſending out many four-cornered branches. The leaves are oval, woolly on both ſides, and are bluntly crenated on their borders. The upper part of the branches are adorned with purple flowers in whorls, having two ſmall oval entire leaves under each whorl; the flowers are as large as thoſe of the firſt ſort, but their cups are very woolly, and their indentures end in ſharp points. When the ſeaſon proves warm and dry, the plants will produce good ſeeds in England.

The eleventh ſpecies grows naturally on the Alps. This is very like the ſeventh ſort, but the ſtalks and leaves are very hairy, ſawed toward their points, hoary on their under ſide, and ſit cloſe to the branches. The flowers are larger than thoſe of the ſeventh ſort, and are of a paler red. The ſeeds ripen in Auguſt.

The twelfth ſort is the common wild or wood Sage, which grows naturally in woods and thickets in many parts of England, ſo is rarely admitted into gardens. It thrives in any ſoil or ſituation.

The thirteenth ſpecies is the common Water Germander, which grows naturally in the iſle of Ely, and ſome other fenny parts of England. It has a ſmall, ſtringy, fibrous, creeping root, which is perennial, from which ariſe many four-cornered, trailing, diffuſed ſtalks. The leaves are oblong, hairy, and indented, ſitting cloſe to the ſtalks. The flowers are produced at the wings of the ſtalks, two riſing on each ſide, at every joint. They are of a purple colour and ſit very cloſe to the bottom of the leaves; theſe appear in July, but are ſeldom ſucceeded by ſeeds.

The fourteenth ſort is the Common or Syrian Marum, which grows naturally in Syria, and alſo in the kingdom of Valencia. It has a low ſhrubby ſtalk, ſending out many ligneous branches, which in warm countries will riſe three or four feet high, but in England it is rarely ſeen above half that height. The ſtalks are very hoary; the leaves are ſmall, oval, oppoſite at each joint, and pointed at both ends: they are hoary, and have a piercing grateful ſcent, ſo quick as to cauſe ſneezing. The flowers grow in looſe whorled ſpikes at the ends of the branches, of a bright red colour. They appear in July and Auguſt, but are not ſucceeded by ſeeds in England.

The fifteenth ſort is the Common Ground Pine, which grows naturally on chalky arable land in ſeveral parts of England.

The ſixteenth ſort grows naturally in the ſouth of France, in Italy and Spain. It is an annual plant, with a ſingle ligneous root ſending out a few fibres. The ſtalks are about ſix inches high. The leaves are narrow, very hairy, and indented towards their points. The flowers come out from the wings of the ſtalks, to which they ſit very cloſe; they are large, and their colour is a beautiful bright purple. Theſe appear in July, but unleſs the ſeaſon proves favourable, they are not ſucceeded by ſeeds in England.

The ſeventeenth ſort grows naturally about Nice in Italy; this is alſo an annual plant, much like the former, but the leaves are narrower and entire. The whole plant is covered with white woolly hairs, and the flowers are ſmaller than thoſe of the former.

The eighteenth is a native of La Vera Cruz; this is an annual plant, with an erect four-cornered ſtalk a foot and a half high. The leaves are ſmooth, oblong, oval, and bluntly indented. The flowers are ſituated at the wings of the ſtalks, two of them ariſing at each joint, upon ſhort ſlender footſtalks; they are ſmall and white, having ſhort impalements, which are cut at the brim into five very acute points. Theſe appear in July and are ſucceeded by ſeeds which ripen in autumn.

The nineteenth ſpecies is a native of the ſame place; this is an annual plant, it riſes with a ſlender, upright, four-cornered ſtalk, to the height of three feet. The leaves are three inches long, and one broad; oval, ſpear-ſhaped, of a bright green on their upper ſide, but pale on their under; they are unequally ſawed on their edges, and ſtand upon long footſtalks. The flowers appear, in long bunches, at the wings of the ſtalk, and alſo at the top. They are pretty large, white, and have bladdered impalements. Theſe appear late in July, and unleſs the ſeaſon proves favourable, no good ſeeds will ſucceed them.

Culture of the Tree GERMANDER.

The firſt, ſecond, third, fourth, and tenth ſpecies are propagated by cuttings, which ſhould be planted in ſpring, on a bed of light freſh earth, obſerving to ſhade and water them till they have taken root; after which they will require no farther care, than to be kept clear from weeds, till the following autumn, at which time they ſhould be tranſplanted where they are to remain. In removing them preſerve as much of the former earth to their roots as poſſible. If the ſeaſon ſhould prove dry they muſt be watered till they have taken freſh root. Always obſerve to keep the ground clean about them, and prune off ſuch ſhoots as are ill ſituated, and the flowering branches when they decay.

They may alſo be propagated by ſeeds. If theſe are ſown upon a bed of light earth in April the plants will come up in ſix weeks after, and may be tranſplanted in autumn, where they are deſigned to remain.

The third ſort is often preſerved in pots, for though it will endure the cold of our ordinary winters, if planted on a dry ſoil, and in a warm ſituation; yet, in ſevere froſts, it is often deſtroyed; it therefore, at ſuch times, requires the ſhelter of the green-houſe.

The fifth ſpecies is preſerved in botanic gardens for the ſake of variety. It is propagated by ſeeds, which may be ſown in the ſpring in the place where the plants are to remain. When theſe come up they will require no other culture than being kept clean from weeds.

The ſixth ſpecies is alſo propagated by ſeeds, which if ſown in autumn, or permitted to ſcatter when ripe, will ſucceed better than if ſown in the ſpring, and the plants will come earlier to flower.

The ſeventh ſpecies propagates very faſt by its creeping root. The beſt time to tranſplant it is in autumn. The eleventh ſort may be propagated in the ſame mander.

The eighth ſpecies is propagated by parting of the roots in autumn, or by ſowing of the ſeeds at the ſame ſeaſon, which will more certainly ſucceed than thoſe which are ſown in ſpring. It loves an open ſituation expoſed to the ſun, but will thrive in almoſt any ſoil which is not too moiſt.

The twelfth ſpecies is never admitted into gardens.

The thirteenth may be propagated by its creeping roots, or planting the young ſhoots in the ſpring, in the ſame manner as Mint, &c. It ſhould have a moiſt ſoil, otherwiſe it will not thrive in gardens.

The fourteenth ſpecies is eaſily propagated by ſlips or cuttings, which, if planted during the ſummer months on a bed of light loamy earth, covering them down cloſe either with bell or hand-glaſſes, and ſhading them from the ſun will put out roots very freely; after which they ſhould be tranſplanted either into ſeparate ſmall pots, or on a warm border at about ſix inches diſtance every way, obſerving to ſhade them from the ſun, and to give them gentle waterings till they have taken new root; after which they will require no other care than to be kept clean from weeds.

Theſe plants will live through the winter in the open air, if they are planted in a dry ſoil and a warm ſituation, when the froſts are not very ſevere; but in very hard winters they are frequently killed, if they are not protected by mats or ſome other covering.

The cats are very fond of this plant, and where there are but few will deſtroy them, if care is not taken to prevent it; but when there is a great number of the plants together, the cats ſeldom touch them.

If the ſeeds of the fifteenth, ſixteenth, and ſeventeenth ſpecies are permitted to ſcatter, the plants will come up better than if ſown, and require no other care but to thin them, and to keep them clean from weeds; or if the ſeeds are ſown it ſhould be in autumn, for they rarely ſucceed when they are ſown in ſpring.

The eighteenth and nineteenth ſpecies are too tender to thrive in the open air of our climate. The ſeeds of theſe ſhould therefore be ſown in autumn, in ſmall pots, which muſt be plunged into the tan-bed in the ſtove, where they ſhould remain till ſpring, when they may be taken out and plunged into a hot-bed, which will bring up the plants. When theſe are fit to remove they ſhould be each planted in a ſeparate pot, and plunged into a hot-bed, and afterwards treated in the ſame manner as other tender plants which require conſtant ſhelter.

Falſe GERMANDER, a ſpecies of Veronica or Speedwell. See the article Speedwell.

Water GERMANDER. See *Tree* Germander.

GERMEN. The rudiment of the fruit, accompanying the flower; but not yet arrived at maturity.

GESNERA, a genus of plants of which there are only two ſpecies. 1. Geſnera with a large woolly Foxglove leaf. 2. Low Geſnera with a yellowiſh flower.

The firſt ſpecies is a native of Jamaica. It riſes with a ſhrubby ſtalk to the height of ſix, and ſometimes ſeven feet, and divides into two or three irregular branches, covered with a ruſſet wool. The leaves are ſeven or eight inches long, and two and a half broad in the middle, with a ruſſet woolly midrib; the edges are crenated, and they have ſhort footſtalks. Towards the ends of the branches are placed the footſtalks of the flowers at the joints, ariſing from the wings of the ſtalk, which are naked, branching at the top into many ſmaller footſtalks, each ſuſtaining a ſingle flower, with a ſhort crooked tube, indented at the top in five obtuſe ſegments of a purple colour. It flowers in July and Auguſt.

The ſecond ſpecies is a native of Carthagena in New Spain, it ſeldom riſes more than three feet high. The leaves are much ſmaller than thoſe of the former, they are ſawed on their edges, and ſit cloſe to the ſtalk; the flowers ſtand upon branching footſtalks, each ſuſtaining many flowers, which are deeper cut at the brims than thoſe of the firſt ſort. They are of a yellowiſh colour.

Culture of the Gesnera.

Theſe plants are propagated by ſeeds, which ſhould be ſown in pots and plunged into a hot-bed of tanner's bark, as ſoon as they arrive in England, for they ſometimes remain from autumn till the ſpring following in the ground; therefore when they happen to arrive at that ſeaſon, the pots in which the ſeeds are ſown, ſhould be plunged into the tan-bed in the ſtove, and during the winter the earth ſhould be now and then gently watered, to prevent its drying too much, but it muſt not be too moiſt.

In the ſpring the pots ſhould be removed out of the ſtove, and plunged into a freſh hot-bed which will bring up the plants ſoon after. When theſe are fit to remove, they ſhould be each planted into a ſeparate pot, and plunged into a good hot-bed of tan, obſerving to ſhade them till they have taken new root, after which they muſt be treated in the ſame way as other tender exotics.

In autumn they muſt be plunged into the tan-bed in the ſtove, where they muſt conſtantly remain, for they will not thrive out of the tan-bed. In the ſummer they ſhould have free air admitted to them at all times, when the weather is warm. As the plants advance in growth they will require larger pots; but care muſt be taken not to over-pot them, for they will not thrive in large pots.

GEUM, *Avens* or *Herb Bennet*, a genus of plants ranged by Linnæus among the *icoſandria polyginia*, and of which there are five ſpecies. 1. Geum with upright flowers, a globular fruit, with naked hooked beards, and trifoliate leaves. 2. Geum with upright flowers, a globular fruit, and harp-ſhaped leaves, or the common Avens, or Herb Bennet. 3. Geum with nodding flowers, and an oblong fruit, with feathery beards, or the Aquatic Herb Bennet. 4. Geum with a ſingle upright flower, and an oblong fruit, with feathery beards. 5. Geum with uniform ſmall leaves, cut at the edges, alternately ſmaller, and a creeping ſtalk.

Theſe are perennial plants. The firſt ſpecies is a native of North America. It riſes two feet and a half high. The main ſtem branches out at the top into ſmall footſtalks, each being terminated by a ſmall white flower.

The ſecond ſort grows plentifully by the ſides of hedges, and in woods in many parts of England, and other countries in Europe.

The third ſpecies is the purple Marſh Avens, and grows naturally in moiſt meadows in ſeveral parts of Europe, and particularly in the north of England.

The fourth ſort grows naturally upon the Alps. The ſtalk ſeldom riſes more than five or ſix inches high. The leaves are compoſed of three or four pair of ſmall irregular pinnæ, ſet along the midrib, which is terminated by one very broad roundiſh lobe, crenated on the edge. The flowers are large, of a bright yellow colour, and ſtand ſingle on the top of the ſtalk. It flowers in May and June.

The fifth ſpecies is a native of Switzerland. This is a very low plant, the flower-ſtalks are about three inches long, and bend on one ſide; they are each terminated by one bright yellow flower. It flowers about the ſame time as the former.

Culture of the Geum.

Theſe are all hardy plants, eaſily propagated by ſeeds, which ſhould be ſown in autumn; for when they are ſown in the ſpring, they do not grow that year.

The plants require a ſhady ſituation, but will grow in any ſoil.

GIBBOUS, a term uſed by botaniſts, to denote any protuberance, or convexity of a ſeed, fruit, &c.

GILLY-FLOWER, or CLOVE GILLY-FLOWER, or JULY-FLOWER, a ſpecies of the Carnation. See the article Carnation.

Queen's GILLY-FLOWER. See Rocket.

Stock GILLY-FLOWER. See Stock *July-flower*.

GINGER, *Amomum*, a genus of plants, of which there are only two ſpecies. 1. Ginger. 2. Broad-leaved, Wild Ginger, called Zerumbet.

The firſt, which is the common Ginger, is cultivated for ſale in moſt of the iſlands in America, but is a native of the Eaſt-Indies, and alſo of ſome part of the Weſt-Indies, where it is found growing naturally without culture. The dried roots of this ſort furniſh a conſiderable export from the Britiſh colonies in America.

Theſe roots are of great uſe in the kitchen, as alſo in medicine: and the green roots preſerved as a ſweetmeat, are preferable to every other ſort. The roots of this ſort are jointed, and ſpread in the ground; theſe put out many green reed-like ſtalks in the ſpring, which riſe to the height of two feet and a half, with narrow leaves; the flower ſtems afterwards riſe by the ſide of theſe, immediately from the root: theſe are naked, ending with an oblong ſcaly ſpike; from each of theſe ſcales is produced a ſingle blue flower, whoſe petals are but little longer than the ſquamoſe covering.

The ſecond ſort grows naturally in India: the roots of this are much larger than thoſe of the firſt, but are jointed in the ſame manner. The ſtalks grow from three to near four feet high with oblong leaves placed alternately; the flower ſtems riſe immediately from the root; theſe are terminated by oblong, blunt, ſcaly theads; out of each ſcale is produced a ſingle white flower, whoſe petals extend a conſiderable length beyond their ſcaly covering.

Culture of the GINGER.

They are eaſily propagated by parting of their roots; the beſt time for doing this is in the ſpring, before they put out new ſhoots, for they ſhould not be tranſplanted in ſummer when they are in full vigour, nor do they ſucceed ſo well when they are removed in autumn, becauſe they remain long after in an inactive ſtate, and during that time, if wet comes to the roots, it often cauſes them to rot. When the roots are parted, they ſhould not be divided into ſmall pieces, eſpecially if they are deſigned to have flowers; for until the roots have ſpread to the ſides of the pots, they rarely put out flower-ſtems, for which reaſon they ſhould not be planted in very large pots.

The pots with theſe roots ſhould conſtantly remain plunged in the tan-bed; for if they are taken out and placed on ſhelves in the ſtove, their fibres frequently ſhrink, which often occaſions the roots to decay.

GLADE, in agriculture, gardening, &c. a viſta, or open and light paſſage made through a thick wood, grove, or the like, by lopping off the branches of trees along the way.

GLADWIN, a ſpecies of the Iris. See the article IRIS.

GLANS, a kind of fruit, contained in a ſmooth, hard bark, with but one ſeed, the hinder part covered with a ſort of cup, and the fore part bare, as Acorns; it is properly the fruit without the cup.

GLASWORT, or *Shrubby* GLASWORT. This is a plant of no great beauty, therefore ſeldom admitted into gardens.

Culture of the GLASWORT.

It may be propagated by ſowing the ſeeds in autumn; and if they are permitted to ſcatter their ſeeds when ripe, a new ſucceſſion of plants will riſe without any trouble.

GLASTENBURY-*Thorn*. See *Glaſtenbury*-THORN.

GLOBE AMARANTH. See EVERLASTING-FLOWER.

GLUMA, or GLUME, a ſpecies of Calyx, conſiſting of two or three membraneous valves, which are often pellucid at their edges. This kind of cup belongs to the graſſes.

GOAT'S-BEARD, *Tragopogon*, a genus of plants, ranged by Linnæus among the *ſyngeneſia polygamia*, and of which there are ſix ſpecies. 1. Goat's-Beard, with an empalement equal to the rays of the flower, and entire leaves; or common Goat's-Beard. 2. Goat's-Beard, with the empalement longer than the rays of the flower, and linear cloſed leaves; or ſmall, yellow, meadow Goat's-Beard. 3. Goat's-Beard, with an empalement longer than the rays of the flower, entire cloſed leaves, and the foot-ſtalk thicker at the upper part, commonly called Salſafy. 4. Goat's-Beard, with an empalement longer than the rays of the flower, entire leaves, and ſmooth ſeeds, thoſe of the diſk being covered with a feathery down, and thoſe on the borders briſtly. 5. Goat's-Beard, with the empalement ſhorter than the rays of the flowers, narrow clouded leaves, and a hairy ſtalk; or hairy Goat's-Beard. 6. Goat's-Beard, with prickly empalements, which are ſhorter than the petals, and arrow wing-pointed leaves.

The firſt ſort is a native of Auſtria and Germany, where it grows naturally in the meadows. The ſtalk riſes near three feet high. The leaves are three quarters of an inch broad at their baſe, and near a foot long, cloſed together, and ending in acute points. One large yellow flower terminates the ſtalk: this is compoſed of hermaphrodite florets which lie over each other like the ſcales of fiſhes, theſe are included in one common impalement which is equal in length to the rays of the flower. Each floret is ſucceeded by an oblong ſeed, which is larger at the baſe than at the point, where it is crowned with a large feathery down. The ſeeds of the border or ray are crooked and rough, but thoſe of the diſk are ſtrait and ſmooth.

The ſecond ſpecies grows naturally in moiſt paſtures in many parts of England. It is often called *Go-to-bed-at-noon*, becauſe the flowers commonly cloſe every day at that time. The leaves are almoſt as long as thoſe of the firſt ſort, but are not more than a third part ſo board; they are of a deep green colour, and end in acute points. The ſtalks riſe about a foot high, and ſuſtain one yellow flower at the top not more than half ſo large as thoſe of the firſt.

When this ſort is about four or five inches high, the country people gather it out of the fields, and boil it in the ſame way as Aſparagus, and ſome give it the preference.

The third ſort is cultivated in gardens by the title of Salſafy. The roots of this are dreſſed in different ways, and of late years it has, by ſome, been cultivated for the ſtalks, which are cut in the ſpring when they are four or five inches high, which are dreſſed in like manner as the ſecond ſort; and the ſtalks being much longer and tenderer than the former, are better for the purpoſe.

The leaves are broad, the flowers are large, and of a blue colour, and the footſtalk immediately under the flower is much thicker than below.

The fourth ſort is a native of Italy. The ſtalk ſeldom riſe a foot high; the leaves are long and narrow, and the flowers are ſmall, and of a very pale red.

The fifth ſpecies grows naturally in Iſtria, this has narrow hairy leaves. The ſtalks riſe about a foot and a half high, are naked moſt part of their length, very hairy, and ſuſtain one large yellow flower.

The ſixth ſpecies is a native of Crete, and Italy. It is an annual plant very much reſembling the Sow-thiſtle. It is ſeldom admitted into gardens, for the ſeeds being wafted by the winds to a great diſtance, and thereby filling the garden with their plants, ſoon renders it a troubleſome weed.

Culture of the GOAT'S-BEARD.

Theſe plants are propagated from ſeeds, which ſhould be ſown in April upon an open ſpot of ground, in rows about nine or ten inches diſtant, and when the plants are come up, they ſhould be hoed out, leaving them about ſix inches aſunder in the rows. Great care ſhould be obſerved to keep them clean from weeds, which would ſoon overbear the plants, and ſpoil them.

This is all the culture they require, and if the ſoil be light and not too dry, the plants will have large roots before winter; at which time the Salſafy, whoſe roots are eaten at that ſeaſon will be fit for uſe, and may be taken up at any time after their leaves begin to decay, for when they ſhoot again, they will be ſticky, and not fit for uſe.

The common yellow ſort, whoſe ſhoots are ſold in the market, will be fit for uſe in April and May, according to the forwardneſs of the ſeaſon. The beſt time to cut them is, when their ſtems are about four inches long, for when they are ſuffered to grow higher they are not good.

Some people in cultivating theſe plants ſow their ſeeds in beds pretty cloſe; and when they come up they tranſplant them out in rows at the before-mentioned diſtances; but, as they form tap-roots, which abound with a milky juice, when the extream part of their root is broken by tranſplanting, they ſeldom thrive well afterwards; therefore it is by far the better way to make drills in the ground, and ſcatter the ſeeds therein, as before directed, whereby the rows will be at a due diſtance, and there will be nothing more to do than to hoe out the plants when they are too thick in the rows, which will be much leſs trouble than the other method of tranſplanting, and the plants will be much larger and fairer.

GOAT'S *Rue.* See *Goat's* RUE.

GOAT'S *Thorn.* See *Goat's* THORN.

GOLDEN-ROD, *Solidago*, a genus of plants ranged by Linnæus among the *ſyngeneſia polygamia ſuperflua*, and of which there are twenty-eight ſpecies. 1. Golden-rod with an erect angular ſtalk, flowers in cluſters upon upright panicles, and the lower leaves ſpear-ſhaped. 2. Golden-rod with an erect panicled ſtalk, the lower leaves indented like ſaws, but thoſe on the ſtalks almoſt entire. 3. Golden-rod with narrow ſpear-ſhaped leaves on the ſtalk almoſt entire, and flowers in cluſters ſitting cloſe to the ſtalks. 4. Golden rod with narrow, ſpear-ſhaped, hoary leaves, and the ſtalk terminated by a corymbus of flowers. 5. Golden-rod with an erect ſtalk, ſpear-ſhaped leaves ſharply ſawed, and flower in a corymbus. 6. Golden-rod with a panicled corymbus, a recurved racemus, and rough ſawed leaves with three veins. 7. Golden-rod with ſpearſhaped, ſharp-pointed, ſawed leaves, and footſtalks with one flower. 8. Golden-rod with a panicled corymbus, a recurved racemus, and leaves almoſt entire, without veins. 9. Golden-rod with a panicled corymbus, a recurved racemus, and rough veined leaves. 10. Golden-rod with a flexible ſtalk, oval, ſharp-pointed, ſawed leaves, and ſimple racemus on the ſide of the ſtalk. 11. Golden-rod, with linear, entire leaves, and a ſimple corymbus. 12. Golden-rod with a flexible ſtalk, oval, ſpear-ſhaped, ſawed leaves, and upright ſpikes of flowers. 13. Golden-rod, with an erect, ſmooth ſtalk, oval, ſpear-ſhaped, ſawed leaves, and ſimple ſpikes of flowers on the ſide of the ſtalk. 14. Golden-rod, with a panicled corymbus, recurved ſpikes of flowers, a hairy ſtalk, and ſpear-ſhaped, ſawed leaves, hoary on their under-ſide. 15. Golden-rod, with a panicled corymbus, recurved ſpikes of flowers, and ſpear-ſhaped, indented leaves, ſitting cloſe to the ſtalk. 16. Golden-rod, with oval, rough leaves on the ſtalk, alternate branches. and bundled ſpikes of flowers terminating the branches. 17. Golden-rod, with an oblique ſtalk, erect foot-ſtalks to the flowers, and entire ſpear-ſhaped leaves. 18. Golden-rod, with an erect paniculated corymbus, a ſmooth ſtalk, and very long entire ſmooth leaves. 19. Golden-rod, with ſpear-ſhaped, fleſhy, very ſmooth leaves, with rough edges, and a panicled corymbus of flowers. 20. Golden-rod, with an erect, ſmooth ſtalk, leaves ſitting cloſe, and ſimple erect ſpikes of flowers. 21. Golden-rod, with a panicled ſtalk, ſingle lateral ſpikes of flowers, and rough, entire, ſpear-ſhaped leaves. 22. Golden-rod, with a panicled corymbus, the upper part of the ſpikes cloſer ſet with flowers, and a ſmooth ſtalk. 23. Golden-rod, with a panicled corymbus, recurved ſpikes of flowers, and the lower part of the ſtalk branching and flowering. 24. Golden-rod, with a panicled ſtalk, cluſtered ſpikes of flowers, lower leaves ſpear-ſhaped upon foot-ſtalks, and thoſe upon the ſtalks ſmooth, and ſitting cloſe. 25. Golden-rod, with a panicled corymbus, very long recurved ſpikes of flowers, and rough, ſpear-ſhaped leaves. 26. Golden-rod, with a panicled ſtalk, erect foot-ſtalks to the flowers, and ſmooth, narrow, entire leaves. 27. Golden-rod, with a panicled ſtalk, erect ſpikes with flowers in cluſters, and ſpear-ſhaped, rough, ſawed leaves. 28. Golden-rod, with a panicled ſtalk, the ſpikes of flowers thinly diſpoſed, the foot-ſtalks erect, the lower leaves ſpear-ſhaped and ſawed, but thoſe on the ſtalks obtuſe, entire, and ſitting cloſe.

The five firſt ſpecies are natives of England, and never cultivated in gardens.

The ſixth ſpecies grows naturally in Canada, and many other parts of North America. The ſtalks are three feet high. The leaves are entire, narrow, acute-pointed, a little rough on their ſurface, and ſitting cloſe to the ſtalk, which is terminated by a cloſe panicle of yellow flowers, which makes an elegant appearance.

The ſeventh ſort grows naturally on the Alps. The ſtalks ſeldom riſe more than four or five inches high. The leaves are ſmall and ſpear-ſhaped, and at their baſe is ſituated the foot-ſtalk of the flower, which is an inch long: it ſuſtains one yellow flower at the top, which makes but little appearance.

The eighth ſpecies is a native of ſeveral parts of North America. The ſtalks of this riſe higher than thoſe of the ſixth ſort; the leaves are broader, without veins, and ſtand cloſer upon the ſtalks. The flowers are noble, of a bright yellow, and appear later in the year than thoſe of the former.

The ninth ſpecies has ſtrong, ſmooth ſtalks, about three feet high. The leaves are rough, veined, and entire, having no foot-ſtalks. The panicle of flowers is very compact, and the racemi are ſhort.

The tenth ſort has flexible ſtalks, about two feet high. The leaves are oval, acute-pointed, deeply ſawed on their edges, and ſtanding on ſhort foot-ſtalks. The racemi of flowers are produced from the wings of the ſtalk, which is alſo terminated by a thick ſpike.

The eleventh ſort is a native of the ſouth of France, and of Italy. The ſtalks are near two feet high. The leaves are narrow, ſpear-ſhaped, and entire. Moſt part of the ſtalk is adorned with flowers, ſtanding on long foot-ſtalks, which proceed from the wings.

The twelfth ſort has a great reſemblance of the tenth, but the leaves are ſmoother, more unequally ſawed, and their foot-ſtalks are a little longer. The racemi of the flowers are alſo longer, and grow more erect.

The thirteenth ſort has ſmooth, erect ſtalks, three or four feet high. The leaves are oval, ſpear-ſhaped, and ſawed on their edges. The racemi of flowers are ſhort, and come out on the ſide of the ſtalk.

The fourteenth ſpecies has hairy ſtalks, which riſe four feet high. The leaves are long, ſpear-ſhaped, ſawed on their edges, and downy on their under-ſide. The ſtalks are terminated by a large corymbus of flowers, compoſed of ſeveral reflexed racemi.

The fifteenth ſpecies has rough, hairy ſtalks, two feet high. The leaves are long, ſpear-ſhaped, and a little indented on their edges. The ſtalks are terminated by a large corymbus of flowers, compoſed of many long reflexed racemi.

The ſixteenth ſpecies has rough, channelled ſtalks, which riſe from two to three feet high: they are decorated with large, rough, oval leaves, and are terminated by bunches of yellow flowers, forming almoſt an umbel.

The ſeventeenth ſpecies is a native of Mexico. The ſtalks are ſmooth, and a foot and a half high. The leaves are ſmooth, ſpear-ſhaped, and entire. The flowers are ſituated on one ſide of the ſtalk, forming a ſmall corymbus at the end of the foot-ſtalk.

The eighteenth ſort has hairy ſtalks, which riſe to the height of ſix, and ſometimes ſeven feet. The leaves are ſmooth and ſpear-ſhaped. The ſtalk is terminated by a compact corymbus of flowers, ranged on ſhort racemi.

The nineteenth ſort riſes with thick, ſucculent, ſmooth ſtalks, five feet high, decorated with ſmooth, fleſhy, ſpear-ſhaped leaves, whoſe edges are rough. The flowers terminate the ſtalk in a corymbus; the racemi which compoſe it are erect, and below the flowers are cloſely garniſhed with linear ſmooth leaves.

The twentieth ſpecies has ſmooth, diffuſed ſtalks, three feet high. The leaves are very narrow and ſmooth. The upper part of the ſtalk ſends out many long ſide branches, which are terminated by ſimple racemi of ſmall yellow flowers, ſtanding erect.

The twenty-firſt ſpecies ſends out many ſlender hairy ſtalks, three feet high. The leaves are ſmooth, ſpear-ſhaped, rough, and entire. The upper part of the ſtalk ſends out on each ſide ſingle racemi of bright yellow flowers. This ſort flowers very late in the year.

The twenty-ſecond ſpecies has ſlender ſmooth ſtalks, riſing from two to three feet high. The leaves are ſmooth, ſpear-ſhaped, and a little notched on their edges. The ſtalk is terminated by a panicled corymbus of yellow flowers.

The twenty-third ſort ſends out at the bottom large oval leaves, ſawed on their edges, whoſe foot-ſtalks are bordered by the appendix of the leaf. The ſtalks are ſlender, ſtiff, and of a purpliſh colour branching out in looſe racemi of flowers, which are recurved, and decorated with ſmooth, ſpear-ſhaped, entire leaves.

The twenty-fourth ſort has ſmooth erect ſtalks two feet high. The leaves are ſmall, ſpear-ſhaped, and entire. The flowers terminate the ſtalk in a cluſtered corymbus, whoſe footſtalks are erect.

The twenty-fifth ſpecies ſends out ſtrong ſmooth ſtalks two feet high. The leaves are rough, ſpear-ſhaped and indented on their edges. The upper part of the ſtalk divides into many ſlender branches, which are decorated with very ſmall leaves, and are terminated by recurved racemi of bright yellow flowers.

The twenty-ſixth ſort ſends out ſmooth panicled ſtalks two feet high. The leaves are linear, ſmooth, obtuſe, entire, and ſet cloſe to the ſtalk. The flowers terminate the ſtalk in looſe panicles, ſtanding erect.

The twenty-ſeventh ſort has purpliſh ſtalks, which riſe three feet high. The leaves are rough, ſpear-ſhaped, ſlightly ſawed on their edges, and ending in acute points. The ſtalks are terminated by erect racemi of flowers, growing in cluſters, of a bright yellow colour.

The twenty-eighth ſpecies has ſmooth, pale, green ſtalks which riſe four feet high. The leaves are oblong, ſmooth, entire, blunt-pointed, and ſit very cloſe. The ſtalks are terminated by ſimple racemi, which are thinly diſpoſed in a corymbus, but their footſtalks are erect.

Theſe ſpecies are moſt of them natives of North-America, and we have ſeveral varieties of them in our gardens.

Culture of the Golden-Rod:

Theſe plants are hardy and will thrive in almoſt any ſituation in our climate. They are eaſily propagated by parting of their roots; the beſt time for doing which is ſoon after the flowers decay, for thoſe that are parted in the ſpring, will not be well eſtabliſhed in the ground before they begin to put out their ſtalks, which will prevent their flowering ſtrong, unleſs the ſummer is wet, or the plants duly watered, which is difficult to perform in a large plantation.

When the roots are well fixed in the ground, they may remain five or ſix years without tranſplanting; for if the ground about them is dug every winter, and ſuch of the ſorts as ſpread much at their roots are reduced ſo as to keep them within proper limits, they will, for that ſpace, require no other culture. But when that time is expired it will be proper to take up the roots, which will then begin to decay in the middle of the bunch, therefore the off-ſets ſhould be taken off to plant, and the old decayed roots thrown away.

The plants may alſo be propagated by ſeeds, which ſhould be ſown ſoon after they are ripe, for then there is a greater certainty of their growing, and the plants will come up the ſpring following; whereas thoſe which are ſown in the ſpring, generally remain a year in the ground before the plants appear.

When the plants come up, and have ſtrength enough to be removed, they may be planted in a ſhady border at ſix inches inches diſtance, where they ſhould remain till the following autumn, at which time they ſhould be tranſplanted to the places deſigned for them, and the ſummer following they will flower.

The ſeventeenth ſpecies is not ſo hardy as the others; it therefore requires a warmer ſituation.

Theſe plants flower in autumn, when there is a ſcarcity of other ſorts. They make an elegant appearance in large gardens; for moſt of them ſpread ſo much at their roots, that they require more room than can be well ſpared in ſmall ones. They are fitteſt for wood-walks, and to intermix with ſhrubs, where, if properly diſpoſed, they will appear very ornamental.

Some of the ſpecies begin to flower in the middle of July, which are ſucceeded by others till the end of November; and, in favourable ſeaſons, there are two or three ſorts, which frequently continue in flower till Chriſtmas, ſo that for near five months theſe plants will, in ſucceſſion, adorn the garden.

GOLDEN-ROD-TREE, *Boſia*, a genus of plants ranged by Linnæus among the *pentandria digynia*, and of which there is only one ſpecies.

This plant is a native of the iſlands of the Canaries; and it has alſo been found in ſome of the Britiſh iſlands in America. It is a pretty ſtrong woody ſhrub, growing with a ſtem as large as a middling perſon's leg; the branches come out very irregular, and make very conſiderable ſhoots in ſummer, which ſhould be ſhortened every ſpring, when they fall away and new leaves are produced ſoon after.

Culture of the Golden-Rod-tree.

It is propagated by cuttings planted in the ſpring. The plants muſt be houſed in the winter, being too tender to bear the open air of this country at that ſeaſon. It does not appear that this ſhrub has ever flowered in England.

GOLD OF PLEASURE, a ſpecies of Myagrum.

This plant grows naturally in corn fields in the ſouth of France and in Italy, it is an annual, and riſes with an upright ſtalk about a foot and a half high, ſending out two or four ſide branches, which grow erect. The lower leaves are of a pale green, and are eared at their baſe; thoſe upon the ſtalks diminiſh in their ſize all the way up they are entire and almoſt embrace the ſtalks with their baſe. The flowers grow in looſe ſpikes at the ends of the branches, ſtanding upon footſtalks an inch long: they are compoſed of four ſmall yellowiſh petals, placed in form of a croſs.

Culture of the Gold of Pleasure.

This plant flowers in June and July, and the ſeeds ripen in September; which, if permitted to ſcatter, the plants will riſe without any care. They only require to be thinned and kept clean from weeds.

GOLDYLOCKS, *Chryſocoma*, a genus of plants ranged by Linnæus among the *ſyngeneſia polygamia æqualis*, and of which there are five ſpecies. 1. Herbaceous Goldylocks with narrow ſmooth leaves, and looſe impalements. 2. Herbaceous Goldylocks with flowers growing in panicles, ſpear-ſhaped leaves, having three nerves. 3. Shrubby Goldylocks with very narrow leaves, whoſe back parts run along the ſtalks. 4. Shrubby Goldylocks with very narrow leaves, which are hairy on their under-ſide, and flowers nodding before they are blown. 5. Shrubby Goldylocks with narrow rough leaves which are recurved and hairy, and erect flowers.

The firſt ſpecies grows naturally in Germany, and alſo in France and Italy; it has a perennial root and an annual ſtalk, which riſes about a foot and a half high, round and ſtiff. The leaves are long, ſmooth, narrow, and are placed without any order. The upper part of the ſtalk divides into many ſlender footſtalks, each ſuſtaining a ſingle head of flowers, of a bright yellow.

The ſecond ſort grows naturally in Siberia. It has a perennial creeping root whereby it propagates too faſt to be admitted into the flower-garden, for it often extends two or three feet every way, in the ſpace of one year, but, as it will grow in any ſoil or ſituation, it may be planted in the ſide of extenſive rural walks round the borders of fields, where they will require no care, and their looſe panicles of yellow flowers, will make an agreeable appearance, as they continue a long time in beauty.

The third ſpecies is a native of the Cape of Good Hope. It has a ligneous ſtalk which riſes about a foot high, and divides into many ſmaller branches. The leaves are narrow and of a deep green. The flowers are produced at the ends of the branches, on ſlender naked footſtalks. Their colour is a bright yellow.

The fourth ſpecies is a native of the Cape of Good Hope. This plant has a branching ſhrubby ſtalk, which riſes about a foot high. The leaves are ſhorter than thoſe of the former ſort, and a little hairy. The flowers are not half ſo large, they are of a pale ſulphur colour, and nod on one ſide before they are blown.

The ſixth ſpecies is alſo a native of the Cape. This has a low ſhrubby ſtalk which ſeldom riſes above ſix inches high, branching out on every ſide. The leaves are very narrow, ſhort, rough, and reflexed. The flowers ſtand ſingle on the top of the footſtalks, which ariſe from the upper part of the branches; theſe flowers are larger than thoſe of the laſt, and ſtand erect.

Culture of the GOLDYLOCKS.

The firſt ſpecies is generally propagated by parting of the roots; the beſt time for doing this is in autumn ſoon after the plants decay. It delights in a dry looſe ſoil, in which it will live in the open air, and propagate by its roots very faſt; but in ſtrong wet land, the roots often rot in winter.

The third, fourth, and fifth ſpecies may be propagated by ſeeds which ſhould be ſown in autumn on a common border of light earth. In ſpring the plants will come up, when they ſhould be tranſplanted into pots, and ſheltered in the winter. But the moſt expeditious method of propagating them is by cuttings, which if planted in a common border in any of the ſummer months, and covered with hand-glaſſes will take root. They ſhould be ſhaded from the ſun, and gently watered. When they have got good roots, they ſhould be carefully taken up, and each planted in a ſeparate pot filled with light earth, and placed in the ſhade till the plants have taken root, after which they may be expoſed with other exotics till autumn, and then removed into the green-houſe during the winter ſeaſon.

GOLDYLOCKS. See CUDWEED.

All GOOD, or GOOD HENRY, a ſpecies of Gooſefoot. See the article GOOSEFOOT.

GOOSBERRY-BUSH, *Groſularia*, a diſtinct genus of plants according to all botaniſts except Linnæus, who conſiders it as a ſpecies of the Ribes, and ranges it among the *monogynia pentandria*.

Culture of the GOOSBERRY-BUSH.

It is propagated either by ſuckers taken from the old plants, or by cuttings. Theſe laſt are by far preferable, becauſe they generally root the beſt, and are leaſt apt to produce ſuckers, which always weaken the ſtock from whence they proceed. The cuttings ſhould be taken from the handſomeſt ſhoots of the beſt bearing branches of the moſt fruitful ſhrubs: they ſhould be about ſix or eight inches long, and ſhould be taken off, and planted, in autumn, juſt before their leaves begin to fall, about three inches deep, in light earth, expoſed to the morning ſun. Their growth will be promoted by watering of them gently in dry weather, and they will be trained up regularly to a ſtrait ſtem, if all their under ſhoots are rubbed off in the ſummer, as ſoon as they appear, ſo as to leave only the uppermoſt or ſtrongeſt. In the next October, theſe plants will be fit to remove into a nurſery, where, after trimming their roots, and cutting off all ſide branches, they ſhould be ſet a foot aſunder in rows three feet diſtant from each other, in an open ſpot of freſh earth, which has been well dug, and cleanſed from all noxious weeds and roots. They ſhould here be faſtened to ſhort ſticks, or ſtakes, the more effectually to render their ſtems ſtrait and upright; they ſhould be cleared from all lateral ſhoots to the height of about a foot above the ſurface of the earth; and after one year's training in this manner (keeping them clear from weeds, and cutting out all croſs branches, ſo that their heads may not become too thick,) they will be fit to tranſplant to the places where they are to remain. The ſoil, for them to thrive to the greateſt advantage, ſhould then be a rich light ſandy earth; though they will do very well in middling ſoils which are not too ſtrong or moiſt, and in all ſituations. However, their fruit is beſt when they grow in an open expoſure, and not within the ſhade of other trees. The beſt ſeaſon for this tranſplanting is likewiſe in October; when their leaves begin to decay; and it will alſo be right then to trim their roots again, to diveſt them of all lateral and all croſs ſhoots, and to ſhorten all their long branches, ſo as to make the head regular. The diſtance at which they ſhould be planted now, if there be a large number of them, is eight feet row from row, and ſix feet aſunder in the rows.

The gardeners around London, who raiſe great quantities of theſe buſhes in order to ſupply the markets with their fruit, prune them ſoon after Michaelmas, and then dig up the ground in the above-mentioned intermediate ſpaces, and plant it with Coleworts for ſpring uſe. Their ground is by this means employed all the winter, without hurting the Gooſberries; and the Coleworts ſo planted often eſcape in hard froſts, when others which are leſs ſheltered are often deſtroyed. This huſbandry is well worth practiſing where land is dear, or where perſons are confined for room.

The common practice of clipping the heads of theſe ſhrubs with ſhears, in order to give them a roundiſh form, is very wrong: becauſe they become thereby ſo crowded with wood, that the fruit which they produce never grows then to half the ſize that it would if the branches were properly thinned with a pruning knife, all the miſplaced ones cut away, and the ſtrong bearing ſhoots ſhortened to about ten inches, with care always to prune them off behind a leaf bud. With this management, with keeping the ground clear from weeds, with digging it at leaſt once a year, and with beſtowing a little rotten dung upon it every other year, the fruit will be near twice as large as that which is raiſed in the common way, and the ſhrubs will continue in vigour much longer.

The large white Dutch, the large Amber, the early red, and the early green, both of which laſt are hairy, are generally reckoned the beſt ſorts of Gooſberries: but many others, known by the names of the perſons who firſt raiſed them from ſeeds, are alſo much eſteemed.

Gooſberries yield in plenty an agreeable and cooling liquor, the firſt luſciouſneſs of which is ſoon carried off by proper fermentation. Some make Gooſberry-wine without boiling it at all, becauſe the boiling gives it a browniſh colour: but the truth is, that it will ſoon become ſour, if it be not depurated from the groſs ley, with which it abounds, by a proper fermentation.

GOOSBERRY, *Pereſkia*, a genus of plants, of which there is but one ſpecies.

This plant is a native of the warmer parts of South America. It has many ſlender branches, which if not ſupported, will trail on the ground. The branches and ſtem of the plant are full of whitiſh ſpines, which are produced in tufts. The leaves are roundiſh, very thick, and ſucculent, and the fruit is about the ſize of a Walnut, having tufts of ſmall leaves on it, and has a whitiſh mucilaginous pulp.

Culture of the GOOSBERRY.

It may be propagated by planting of the cuttings during any of the ſummer months, which ſhould be ſet in pots filled with freſh light earth, and plunged into a moderate hot-bed of tanners-bark, obſerving to ſhade them from the ſun in the heat of the day. In about two months the cuttings will have made good roots, when they may be carefully taken out of the pots, and each planted in a ſeparate pot, and plunged into the hot-bed again, where they may remain during the ſummer ſeaſon; but at Michaelmas, when the nights begin to be cold, they ſhould be removed into the ſtove, and plunged into the bark-bed. During the winter ſeaſon the plants muſt be kept warm; in ſummer they muſt have a large ſhare of air, but they ſhould conſtantly remain in the ſtove: for though they will bear the open air in ſummer, in a warm ſituation, yet they will make no progreſs if they are placed abroad; nor do they thrive near ſo well in a dry-ſtove, as when they are plunged in at the back of the tan-bed, to which their branches may be faſtened, to prevent their trailing on other plants.

GOOSE-FOOT, or WILD ORACH, *Chenopodium* a genus of plants, ranged by Linnæus among the *pentandria digynia*, and of which he enumerates twenty-twſpecies, but ſeven of them only are admitted into gardens, the reſt growing wild in this country. 1. Gooſe-foot, with triangular, arrow-ſhaped, entire leaves, called Engliſh Mercury, All Good, or Good Henry. 2. Gooſe-foot, with oblong, ſinuated leaves, and naked, multifid bunches of flowers, commonly called Oak of Jeruſalem. 3. Gooſe-foot, with ſpear-ſhaped, indented leaves, and ſingle leafy bunches of flowers, commonly called Oak of Cappadocia. 4. Gooſe-foot, with intire, oval, rhomboidal leaves, and flowers growing in cluſters; or Stinking Orach. 5. Gooſe-foot, with narrow, ſpear-ſhaped, plane and intire leaves, commonly called Belvedere, or Summer Cypreſs. 6. Gooſe-foot, with narrow, taper, fleſhy leaves, and a ſhrubby ſtalk, called Stone Crop-tree, or Shrubby Glaſswort. 7. Gooſe-foot, with ſpear-ſhaped, indented leaves, and a ſhrubby ſtalk, called Shrubby Mexican Orach.

The firſt ſpecies is found growing in ſhady lanes in many parts of England; it uſed formerly to be cultivated in gardens, and dreſſed in the ſame manner as Spinach; but as the latter is a much better herb, it has juſtly obtained the preference.

The ſecond ſort is a native of North America. It ſends up ſeveral ſtalks from the root, which riſe about two feet high. The leaves are oblong, a little indented on their edges, of a light green, and placed alternately on the ſtalks. The flowers are ſituated on the upper part of the branches, in looſe ſpikes: theſe appear in July, and the ſeeds ripen in September.

The leaves of this plant emit a very ſtrong odoriferous ſcent when bruiſed, for which the plants are preſerved in gardens, for the flower has no beauty.

The third ſpecies is a native of North America, and of many of the warm countries in Europe. It has many oblong leaves at the bottom, which are deeply ſinuated on both ſides; they are purple on their under ſide, and when bruiſed, emit a ſtrong odour. The ſtalks riſe about eight or nine inches high, dividing into ſeveral ſmaller branches. The leaves are of the ſame ſhape as thoſe below, but are ſmaller. The flowers grow in naked, looſe ſpikes, divided into many parts; theſe appear in June and July, and the ſeeds ripen in autumn.

The fourth ſpecies is very common in moſt parts of England, and is ſeldom cultivated, except in ſome phyſic gardens.

For the fifth ſpecies of this genus, commonly called Summer Cypreſs, ſee the article *Summer*-Cypress.

The ſixth ſpecies grows naturally on the ſea-coaſt in Devonſhire and Cornwall, but is propagated in the nurſeries for ſale. It ſends out from the root many ſlender, ſhrubby ſtalks, which riſe five or ſix feet high, and divide upward into ſmall ligneous branches, which grow erect. The leaves are ſmall, taper, and ſucculent; they remain all the year, for which the ſhrub is chiefly valued, for the flowers are ſmall and have no beauty.

The ſeventh ſort has leaves very like thoſe of the ſecond, and have the ſame ſcent; but it has a ſhrubby ſtalk, which riſes five or ſix feet high, and divides into many branches. It is a native of America, and will not live through the winter in the open air of our climate.

Culture of the Goose-foot.

The firſt, ſecond, third, and fourth ſpecies, may be propagated by ſowing the ſeeds in autumn; and if they are permitted to ſcatter their ſeeds, a new ſucceſſion of plants will riſe without any trouble.

The ſixth ſort is propagated by ſuckers, which it ſends out from the roots in plenty. It may be tranſplanted either in ſpring or autumn, and will thrive almoſt any where.

The ſeventh ſort is eaſily propagated by cuttings, during any of the ſummer months, which if planted in a ſhady border and duly watered, will ſoon take root, and then may be planted in pots, and placed with other hardy exotic plants in a ſheltered ſituation during ſummer; and when the froſts come on, they muſt be removed into the green-houſe, but they only require protection from hard froſts, ſo muſt have plenty of air in mild weather.

GORSE. See the article Furz.

GO-TO-BED-AT-NOON, a ſpecies of Goat's-beard. See Goat's-beard.

GOURD, *Cucurbita*, a genus of plants, ranged by Linnæus among the *monœcia ſyngeneſia*, and of which there are four ſpecies. 1. Gourd, with angular woolly leaves, a glandulous baſe, and a woody fruit; or the Greater Bottle Gourd, commonly called Long Gourd. 2. Gourd, with lobated leaves, and a ſmooth fruit; or the Pepo, commonly called the Pompion, or Pumpkin. 3. Gourd, with lobated leaves, and a warted, knotty fruit, commonly called the Warted Gourd. 4. Gourd, with lobated leaves, an erect ſtalk, and a depreſſed, knotty fruit, or the Melopepo, commonly called Squaſh.

Theſe are all annual plants and natives of North America. They are cultivated in the Engliſh gardens by way of curioſity, for the fruit is ſeldom eat here, though if they are gathered when young, and boiled, they have an agreeable flavour.

Culture of the Gourd.

All theſe ſpecies are propagated by ſowing the ſeeds in April upon a hot bed. When the plants are come up, let them be tranſplanted into a more moderate bed, where they ſhould have a great deal of air; and when they have got four or five leaves, let them be removed into an old dunghill, or ſome ſuch place, where they may have room to run, as ſome of the ſorts will ſpread to a great diſtance.

Sour GOURD, or MONKIES BREAD, *Adanſonia*, a genus of plants, of which there is only one ſpecies.

This tree is ſuppoſed to be a native of the Weſt-Indies, and its ſtem is of a prodigious ſize. The leaves of the young plants are entire, of an oblong form, about four or five inches long, and almoſt three broad towards the top, where they are broadeſt, having ſeveral veins running from the middle rib; they are of a lucid green, and ſtand alternately.

As the plants advance in height, the leaves alter, and are divided into three parts, and afterwards into five lobes, which ſpread out in the ſhape of an hand. The fruit is almoſt as large as a man's head, the ſhell is woody and cloſe, having a greeniſh, downy coat: and it is divided into ten, twelve, or fourteen cells within, which contain a great number of kidney-ſhaped ſeeds, as large as the tip of a man's little finger; theſe are cloſely ſurrounded with a mealy pulp, of an acid taſte.

Culture of the Sour Gourd.

The plants riſe eaſily from freſh ſeeds, if they are ſown in a hot-bed, and are of quick growth for two or three years, but afterwards make but little progreſs; the lower part of their ſtems then begin to ſwell and grow much larger than the other part, after which they do not advance much in their upright growth, but put out lateral branches, which incline to an horizontal poſition; the branches are covered with a light grey bark.

The leaves fall off in the latter part of winter, and the young leaves do not come out till ſummer, ſo the branches are naked for near three months.

As this tree is a native of very hot countries, the plants will not thrive in the open air in England, in ſummer; therefore they muſt be conſtantly kept plunged in the bark-bed in the ſtove, and in warm weather the freſh air ſhould be admitted to them every day; but in the winter they muſt be kept warm; while the plants are in a growing ſtate, they muſt be frequently refreſhed with water, but when they are deſtitute of leaves, it muſt be given ſparingly, for too much wet will then rot their roots. It loves a light, rich, loamy ſoil.

GRAFT, or GRAFF, in gardening, a cion or ſhoot of a tree inſerted into another, ſo as make it yield fruit of the ſame nature with that of the tree from whence the graft was taken. See the following article.

GRAFTING, or ENGRAFTING, is the taking a ſhoot from one tree, and inſerting it into another, in ſuch manner as that both may unite and become one tree.

The firſt thing neceſſary to be done is to collect the grafts. In the choice of theſe the following directions ſhould be carefully obſerved: Firſt, That they are ſhoots of the former year. Secondly, That they are taken from healthy fruitful trees. And, thirdly, That you prefer thoſe grafts which are taken from the lateral or horizontal branches, to thoſe taken from the perpendicular ſhoots. Theſe grafts ſhould be cut off from the trees before the buds begin to ſwell, which is generally three weeks or a month before the ſeaſon for grafting; therefore when they are cut off, they ſhould be laid in the ground with the cut downwards, burying them half their length, and covering their tops with dry litter, to prevent their drying: if a ſmall joint of the former year's wood be cut off with the cion, it will preſerve it the better: and when it is grafted, this may be cut off; for the grafts never muſt be cut to a proper length before they are inſerted into the ſtocks; but till then, the ſhoots ſhould remain their full length, as they were taken from the tree, which will preſerve them better from ſtriking. If theſe grafts are to be carried to a conſiderable diſtance, it will be proper to put their cut ends into a lump of clay, and to wrap them up in moſs, which will preſerve them freſh for a month or longer; but theſe ſhould be cut off earlier from the trees than thoſe which are to be grafted near the place where the trees are growing.

The reaſon for grafting is, that as all good fruits have been accidentally obtained from ſeeds, ſo theſe when ſown will often degenerate, and produce ſuch fruit as are not worth cultivating; but when the ſhoots, cions, or grafts, are taken from ſuch trees as yield good fruit, theſe will never vary from their kind, whatever be the ſtock or tree on which they are grafted.

The moſt proper ſeaſon for grafting is the ſpring, juſt before the riſing of the ſap, or at leaſt before it riſes in any great quantity: but the weather muſt be neither froſty nor wet; nor ſhould the wind blow very bleak or ſtrong when this operation is performed; for on theſe circumſtances, and upon the exact joining of the inner bark of the cion with the inner bark of the ſtock, ſo that the ſap which flows between the bark and the wood may be communicated from the one to the other, the ſucceſs of grafting chiefly depends.

The implements neceſſary for grafting are, fine ſmall hand-ſaws to cut off the heads of large ſtocks; a good ſtrong knife with a thick back to make clefts in the ſtocks; a ſharp penknife to cut the grafts; a grafting chiſſel, and a ſmall mallet to pare away the wood; baſs, or woollen yarn, to tie the grafts with; and a quantity of clay, or cement, properly prepared, to lay over the inciſions, in order to prevent their bleeding, and keep out the air.

The method of preparing the clay intended for this purpoſe, is to mix thoroughly together a quantity of ſtrong fat loam, ſome new ſtone-horſe dung broken into ſmall bits, a little tanner's hair, or ſtraw, cut very ſmall, with a little ſalt, and as much water as will make the whole of the conſiſtence of pretty ſtiff mortar.

The cement or compoſition which ſome have of late uſed, and which has been found to anſwer the deſign of keeping out the air better than the above clay, is made of turpentine, bees-wax, and roſin, melted together. This compoſition, when of a proper conſiſtence, is laid about a quarter of an inch thick, upon the cut part of the ſtock round the graft: and has this farther advantage over the clay, that there is no danger of its being hurt by froſt; for cold hardens it; and when the heat of ſummer comes on, by which time it is no longer wanted on the tree, it will melt and fall off without any trouble.

Among the ſeveral methods of grafting hitherto known, the following are moſt approved, and generally practiſed.

Cleft-Grafting, *called alſo Stock, or Slit*-Grafting.

This is uſed chiefly for middle-ſized ſtocks, from one to two inches in diameter. The ſeaſon for it is in the months of February and March; and the method, as now practiſed, is this:

The head of the ſtalk being ſawn, or cut off, with a ſlope, ſmooth and clean, a perpendicular cleft is made therein, about two inches deep, with a ſtrong knife, or chiſſel, from the top of the ſlope, as near to the pith as may be without touching it. In this cleft, the grafting chiſſel, or a wedge, is put to keep it open. The graft or cion is prepared by cutting it aſlope, in form of a wedge, to ſuit the cleft, only leaving a ſmall ſhoulder on each ſide; and when cut, it is to be placed exactly in the cleft, ſo as that the inner bark of the cion may aptly, and cloſely, join to the inner part of the bark, or rind of the ſtock; in the dexterous performance of which, the chief part of the art of grafting conſiſts. That ſide of the cion which is to be placed outward, at the part where it is cut wedge-wiſe and inſerted into the cleft of the ſtock, ſhould be much thicker than the other ſide, the better to facilitate the exact joining of its rind to that of the ſtock; for if theſe two do not unite, the graft will not ſucceed. The rind of the ſtock choſen for this way of grafting ſhould therefore not be too thick; becauſe it will then be the leſs manageable. If the cleft pinch too tight, a ſmall wedge may be left in it to bear the ſtreſs. As ſoon as the graft is properly fixed, the cleft ſhould be cloſely covered over with clay, or, which ſome think better, with moſs, or the freſh bark of a tree bound on with ozier.

When this method, which is the moſt ancient, and moſt common, manner of grafting, is uſed to ſtocks that are not ſtrong, a ligature of baſs ſhould be made around the ſtock, to prevent the opening of its ſlit; and the whole ſhould then be clayed over, or covered with the cement before deſcribed, to hinder the air from penetrating into the ſlit, ſo as to deſtroy the graft, only two eyes of which ſhould here be left above the clay, for ſhooting.

The ſtraiteſt and ſmootheſt part of the ſtock ſhould always be preferred for grafting, in whatever way this operation is performed.

Grafting *in the Rind, or Shoulder*-Grafting.

This is likewiſe called ſlicing and packing, to diſtinguiſh it from grafting in the bark, which will next be ſpoken of: it is performed in the following manner, about the latter end of March, or the beginning of April, on more ſlender ſtocks than thoſe which are commonly uſed for cleft-grafting.

The top of the ſtock is cut off in a ſmooth, ſtraight place: then the cion, or graft, is prepared by cutting it on one ſide from the joint, or ſeam, down ſlope-wiſe, making the ſlope about an inch, or an inch and a half long; and obſerving it is bent, ſo that the cion may ſtand nearly upright when it is fixed to the ſtock. At the top of the ſlope a ſhoulder is made, whereby it is to reſt on the crown of the ſtock. The whole ſlope muſt be plain and ſmooth, that it may lie even to the ſide of the ſtock. The length of the cion uſed here may be about four inches from the ſhoulder, for a ſtandard tree; but for a dwarf, or wall-tree, it may be ſix inches. When the cion is prepared, the outſide of its ſloped end, from the ſhoulder downward, is applied to the weſt, or ſouth-weſt ſide of the ſtock, and its length and breadth meaſured thereon; which done, the bark of the ſtock (but not any of its wood) is cut away to thoſe dimenſions, that the cut part of the cion may be fitted in as exactly as poſſible. In doing this, regard muſt be had to the bigneſs of the ſtock, and the thickneſs of its bark, in order to proportion thereto the length and breadth of the cut part of the cion; otherwiſe the paſſages of the ſap in the ſtock and cion will not meet, and the cion will then of courſe periſh. When the cut part of the cion is exactly fitted to, and laid on that of the ſtock, they are bound together with woollen yarn, and covered with clay an inch above, and as far below, the head of the ſtock; working it round the cion, till it becomes ſharp at top, that the rain may run down it.

This method has ſeveral advantages over the former. Among theſe are, that the wound heals up ſooner, and that, in the mean time, it is in leſs danger from the weather: that it does leſs injury to the ſtocks and grafts, by avoiding all ſevere ſplittings and pinchings; that the bark is more eaſily placed in the paſſage of the ſap here, than in the cleft; that the graft thrives and ſhoots with greater vigour, and bears ſooner in this way than in that; and that it is practicable on ſmaller ſtocks than the other, which muſt have a good body, and conſiſtence, before they can bear cleaving.

GRAFTING *in the Bark*.

This operation is performed thus. Prepare the ſtock and cion as for grafting in the rind, both as to time and manner; but, inſtead of cutting out the bark of the ſtock, ſlit it down, on the ſouth-weſt ſide, from the top, almoſt as long as the ſloped part of the cion, and at the top of the ſlit looſen the bark with the point of your knife. Then thruſt an inſtrument, made of very hard wood, ivory, ſilver, or the like, and formed at the end like the ſlope-end of the cion, but much leſs, down between the bark and wood, to make room for the cion; which being put in, the bark is to be ſo managed, as that it may cloſe exactly to the ſtock and edges of the cion, and the whole is then to be bound up, and covered as before.

Whip-GRAFTING, *or Tongue*-GRAFTING.

This is proper for ſmall ſtocks, from an inch diameter to a quarter of an inch, or even leſs. Mr. Worlidge, Mr. London, Mr. Miller, and others, ſpeak of it as the moſt effectual way of any, and that which is moſt in uſe, becauſe the cion covers the ſtock much ſooner in this method than in any other; for here the cion and the ſtock muſt always be of the ſame thickneſs. There are three ways of performing it, and all of them may be practiſed ſomewhat later than either of the foregoing.

The firſt is, to ſlope the cion off a full inch or more; then to do the ſame to the ſtock; and afterwards to tie the one to the other, with baſs or yarn, ſo as to join them cloſely at every part, but particularly at the rind; and then to cover the joint carefully with well-tempered clay. The baſs uſed for this, or for any other binding, ſhould be taken from a ſound mat, and be ſoaked in water for ſome hours, to increaſe its ſtrength, and render it the more pliable.

The ſecond way is, to make a ſhoulder in the graft, and, the head of the ſtock being cut off and ſmoothed, to join it as in grafting in the rind.

The third method, which is an improvement of the laſt, is properly named tipping or tonguing. This is done by cutting the ſtock off ſlanting, as before, and leaving at its upper ſide a thin piece, or tongue, as it is called, of the wood, pared away like the lower end of a cion. The cion is then ſloped, and tongued, in the ſame manner as the ſtock, and a ſlit is made in each of them, downward in the ſtock, and upward in the graft, on the ſide oppoſite to the tongue, ſo that each may receive the tongue of the other. The cion is then joined to the ſtock, as cloſely as can be, particularly at the bark; a ligature is made round them with baſs or woollen yarn, and the engrafted part is well covered with clay or cement.

Side GRAFTING.

In this, the cion is prepared as in whip-grafting; but the head of the ſtock is not cut off at the time of performing the operation. Inſtead of that, ſo much of the bark as the cion will cover is pared off from the weſt-ſide of the ſtock; then both the cion and the ſtock are ſlit in the laſt mentioned manner of whip-grafting, and they are bound together, and cloſed up with clay. At the year's end, the top of the ſtock is cut off at the grafted place, ſlope-wiſe; and the wound is covered with clay or cement.

Crown-GRAFTING.

This is only practiſed in the larger trees, which are capable of receiving a number of grafts, and are too big to be cloven; for theſe, the head or main branches, being cut off horizontally, four or more grafts are placed round the ſtock, between the bark and the rind, ſomewhat in the manner of a crown. The moſt proper time for performing this is about the latter end of March, or the beginning of April. After the intended number of cions are inſerted, which is done exactly in the ſame manner as that already delivered for grafting in the rind, the whole crown of the ſtock is well clayed over, and only two eyes of each cion are left uncovered; that being ſufficient for their ſhooting.

This method of grafting was more practiſed formerly than it is at preſent; many people having been diſcouraged by the ill ſucceſs that has frequently attended their cions, which have been blown out of the ſtock, by ſtrong winds, after they had made large ſhoots, and even after they had grown there five or ſix years. But this accident may be prevented, by tying the cions to ſtakes faſtened to the tree, till they are ſo firmly fixed, as to have almoſt covered the ſtock.

Root-GRAFTING.

This is a modern invention, the deſign of which is ſomewhat different from that of any of the former methods; this being for the propagation, or multiplication, of plants already fitted to produce their fruit.

To perform this, take a graft, or ſprig, of a young tree, which you intend to propagate, and a ſmall piece of the root of another tree of the ſame kind, or of a like genus, and whip-graft them together; obſerving that the but-ends of the graft and root be well united, and that the rind of the root join cloſely to that of the graft. Theſe may, afterwards, be planted out at pleaſure, and the piece of root will collect the nutritive juices, and feed the graft, as the ſtock does the other way.

This method of propagation is very eaſy and expeditious; roots being more plentiful than ſtocks: by this means the pieces of roots of one crab-ſtock, for example, or of one apple-ſtock, will ſerve for twenty or thirty apple grafts; and the like of other trees. It is alſo an excellent way for raiſing of tender trees, which will hardly bear being grafted in the ſtock. Add, that trees thus grafted bear ſooner, and are more eaſily dwarfed than thoſe done any other way.

The only objection againſt this method is, that the young tree grows but ſlowly at firſt, which is occaſioned by the ſmallneſs of the root that feeds the graft; for in all trees the head muſt follow the increaſe of the roots, from whence it has its nouriſhment.

Reiterated-GRAFTING, *or* GRAFTING *by a double or triple inciſion*.

This is another method mentioned by Agricola, whoſe work, though chimerical enough in many reſpects, contains, notwithſtanding, ſeveral good things. To perform this, firſt graft a good cion on a ſtock, and cut it away to one half, or a third part; then fix to that remaining part of thec ion another graft of a better kind; and to that a third; for the oftener the tree is grafted, the finer fruit it produces.

By this method the author above-mentioned aſſures us, that he produced muſcat pears, which were admirable, making at firſt uſe of a ſtock grafted with a pound-pear, on which he grafted a ſummer bon-cretien; and when the branch of this laſt had ſhot, he grafted on it a cion of a bergamot, which he alſo cut, and grafted on it a cion of a muſcat pear.

GRAFTING *of Branches*.

This is alſo commended by Agricola, as a very certain and profitable operation; beſt practiſed on large, or full-grown, and even old-trees.

To do this, half or more of the branches muſt be lopped off, and grafts of three or four years old be applied to them, taking care to have ſtakes, or other things, to ſupport them againſt the wind, &c.

He adds, that by this method you will have, perhaps, the ſame year, or at leaſt the ſecond or third, ſuch a quantity of fruit, as the youngeſt and ſoundeſt tree would hardly produce.

GRAFTING *by approach, called alſo Inarching, and Ablactation*.

This is uſed only when the tree intended to be grafted, and that from which the graft is to be be taken, ſtand ſo near, or can be brought ſo near to each other, that they may be joined together. The method of performing it is this: the branch to be inarched is fitted to that part of the ſtock where it is to be joined ; the rind, and part of the wood, of one ſide of that branch, is then pared away, very ſmooth and even for the length of three inches ; and afterwards the other branch, which is to ſerve for the ſtock to which the graft is to be united, is ſerved in the ſame manner, ſo that the two may join cloſely and equally together, that the ſap veſſels may meet. A little tongue is then cut upwards in the graft, and a ſlit is made in the ſtock to receive it ; ſo that when they are joined, the tongue prevents their ſlipping, and the graft is the more cloſely united to the ſtock. When they are thus placed exactly together, they muſt be tied with baſs, worſted, or ſome other ſoft thing ; and the place of junction muſt be well covered over with grafting clay, to prevent the air from drying the wound, and the wet from rotting the ſtock. A ſtake muſt alſo be fixed in the ground, and both the ſtock and the graft muſt be tied thereto, to prevent their being diſplaced by the wind. When they have remained in this ſtate four months, they will be ſufficiently united, and the graft may then be cut off from the mother-tree, obſerving to ſlope it cloſe to the ſtock. It is of great ſervice to the graft then to lay a freſh coat of clay all round the grafted or joined part. This operation ſhould be performed in April or May, that the graft may be perfectly united to the ſtock, before the enſuing winter. It is chiefly practiſed upon Oranges, Myrtles, Jaſmines, Firs, Pines, and ſome other trees, which do not ſucceed well in the common way of grafting or budding. But though Orange-trees are here mentioned among the reſt, this practice is not to be adviſed for them, or for any other trees, if they are intended to grow large ; for that they hardly ever do in this method ; and accordingly it is ſeldom uſed but for the curioſity of having a young plant with fruit upon it, in a year or two from its having been raiſed from the ſeed. This is, indeed, effected by inarching a bearing branch into a young ſtock : but the plant ſo treated ſeldom lives long.

The Walnut, Fig, and Mulberry, will alſo take by this method of grafting, though neither of them will ſucceed in any other way ; but ſtill they, like all other trees that are thus managed, will remain weak, and ſtinted in their growth, beſides the ſhortening of their otherwiſe uſual time of duration.

All grafts, particularly of young cions, are ſubject to be injured by birds : but that may be prevented by binding ſome ſmall buſhes about the tops of the ſtocks.

The binding of the grafts, whether it be of baſs or yarn, ſhould be looſened at leaſt, if it be not entirely taken off at midſummer, or thereabout, leſt its then too great tightneſs (as the ſtock will have increaſed in bulk, and the binding, perhaps, have been ſwelled, and conſequently ſhrunk by the weather) ſhould injure the plant.

Eſcutcheon GRAFTING. See the article INOCULATION.

GRAPE, the fruit of the Vine. See VINE.

Sea-Side, or *Mountain* GRAPE, *Coccoloba*, a genus of plants, of which there are ſix ſpecies. 1. Sea-ſide Grape, with round, thick leaves, which are open at the baſe. 2. Sea-ſide Grape, with oblong, heart-ſhaped leaves, and a tree-like ſtalk, terminated by long bunches of fruit. 3. Sea-ſide Grape, with heart-ſhaped oval leaves, and the bunches terminated by long bunches of fruit. 4. Sea-ſide Grape, with target, heart-ſhaped leaves. 5. Sea-ſide Grape, with ſpear-ſhaped, veined leaves, and a ſmall ſpotted fruit, called Chequered Grape in America. 6. Grape, with oval, ſpear-ſhaped leaves, ending in acute points, and a tree-like ſtalk.

The firſt ſort grows naturally in moſt of the iſlands in the Weſt-Indies, upon the ſandy ſea-ſhores, from whence the inhabitants have given it the title of Sea-ſide, or Mangrove Grape ; this ſends up ſeveral woody ſtalks from the root, which riſe eight or ten feet high, with a light brown, ſmooth bark, garniſhed with leaves, which are placed alternately : they are very thick and ſtiff, almoſt round, from five to ſeven inches diameter, of a lucid green on their upper ſide, and veined on their under, ſtanding upon ſhort foot-ſtalks. The flowers come out from the wings of the ſtalks : they are diſpoſed along the foot-ſtalks in long ſlender bunches, like thoſe of the common Currant : theſe bunches are five or ſix inches long ; the flowers are white, and the petal is cut into ſix parts : theſe are ſucceeded by berries, about the ſize of a common Grape, of a purpliſh red colour, incloſing a nut of the ſame ſhape.

The ſecond ſort grows naturally about Carthagena : this ſends out many ſtrong ſtalks from the root, which riſe near twenty feet high, and are covered with a ſmooth grey bark. The leaves are from ſeven to nine inches long, and from three to four broad ; they are indented at the foot-ſtalk like a heart, but end in a point, having ſeveral tranſverſe veins running alternately from the midrib to the border, of a thick, ſtiff conſiſtence, and of a lucid green on their upper ſide. The flowers are produced in long ſlender bunches at the end of the branches ; they are compoſed of five white, acute-pointed petals, which ſpread open in form of a ſtar : theſe are ſucceeded by roundiſh, purple fruit, ſmaller than thoſe of the former ſort, and not ſo well flavoured.

The third ſort grows naturally at La Vera Cruz, in New Spain ; this ſends many ſhrubby ſtalks from the root, which riſe five or ſix feet high, having a light grey bark. The leaves are oval and heart ſhaped, three inches long, and two and a half broad, indented at their foot-ſtalks : theſe are not ſo ſtiff as thoſe of the two former ſorts. The fruit is diſpoſed in a ſlender bunch at the end of the branches : they are ſmall and of a dark purple colour, and are never eaten by the inhabitants.

The fourth ſort is a native of Campeachy : this ſends up many ſlender ligneous ſtalks from the root, which riſe to the height of ſeven or eight feet, covered with a grey bark, garniſhed with heart-ſhaped leaves, about four inches long, and three broad, whoſe foot-ſtalks are joined to the under part of the leaves, like the handle of a target. The leaves are of a lucid green, and ſmooth on their upper ſide.

The fifth ſort grows naturally in Jamaica : this ſends up many ſlender ligneous ſtalks from the root, which riſe four or five feet high, covered with a brown bark. The leaves are ſix inches long and three broad, having many ſtrong veins running from the midrib towards the border : they are of a light green colour, and are not ſo ſtiff as the former. The fruit is ſmall, of a purple colour, growing in ſlender bunches from the end of the branches.

The ſixth ſort grows naturally on the north-ſide of the iſland of Jamaica, upon the mountains, ſo is generally there called the Mountain Grape : this ſort grows to a large ſize, and is eſteemed for its wood, which is ranked among their beſt ſort of timber. The trunk of this tree grows to the ſize of a man's body : it riſes to the height of thirty feet, ſending out ſide branches, which are garniſhed with oval, ſpear-ſhaped leaves, ending in acute points : they are ſix inches long, and two and a half broad toward their baſe, of a bright green on their upper ſide, but are pale on their under, of a thick conſiſtence, and ſtand upon ſhort foot-ſtalks. The fruit of this is produced on long ſlender foot-ſtalks : they are of a purpliſh colour, and are almoſt as large as thoſe of the firſt ſort.

Culture of the Sea-ſide GRAPE.

Theſe plants riſe eaſily from ſeeds, if they are ſown in pots, and plunged into a hot-bed of tan : but as they do not produce fruit in England, the ſeeds muſt be procured from the Weſt-Indies.

When the plants are come up about two or three inches high, they ſhould be each tranſplanted into a ſeparate ſmall pot, and plunged into a freſh hot-bed of tan, where they muſt be ſhaded from the ſun, until they have taken new root ; after which they muſt be treated in the ſame manner as other tender exotics, giving them a proper ſhare of air in warm weather, and gently refreſhing them with water : but they ſhould not have too much wet, for they do not perſpire much, their leaves being of a very cloſe contexture, eſpecially thoſe of the firſt and ſecond ſorts. In autumn theſe plants ſhould be removed into the hot-houſe, and plunged into the bark-bed, otherwiſe they will not make great progreſs; therefore they ſhould always remain in the tan-bed, giving them plenty of air in ſummer. The leaves of theſe plants continue in verdure all the year, ſo make a fine appearance in the hot-houſe in winter.

GRASS-WALKS, and GRASS-PLATS, are generally made by laying turfs, taken from a fine common or down, it being eſteemed a much better method than that of ſowing Graſs-ſeed; but if walks or plats are to be made by ſowing, the beſt way is to procure the ſeed from thoſe paſtures, where the Graſs is naturally fine and clear, or elſe the trouble of keeping it from ſpiry or benty Graſs, will be very great, and it will ſcarce ever look handſome.

In order to ſow Graſs-walks, the ground muſt be firſt dug; and when it has firſt been dreſſed and laid even, it muſt be very carefully raked over, and all the clods and ſtones taken off, and then covered over an inch thick with good mould; this being done, the ſeed is to be ſown pretty thick, that it may come up cloſe and ſhort: it muſt then be raked over again to cover the ſeed, that if the weather ſhould happen to be windy, it may not be blown away. It ought alſo to be obſerved, that where Graſs is ſown in gardens, either for lawns or walks, there ſhould always be a good quantity of the white Trefoil, or Dutch Clover ſown with it; for this will make a fine turf much ſooner than any other ſown Graſs, and will continue a better verdure than any of the Graſs tribe.

In order to keep Graſs-plats or walks handſome, and in good order, you may ſow in autumn, freſh ſeed, over any places that are not well filled, or where the graſs is dead: but nothing improves Graſs ſo much, as mowing and conſtantly rolling.

When turf is laid in gardens, it is a general practice to cover the ſurface of the ground under the turf, either with ſand or very poor earth; the deſign of this is to keep the Graſs fine, by preventing its growing too rank; this is proper enough for very rich ground, but it is not ſo for ſuch land, as is but middling or poor; for when this is practiſed in ſuch places, the Graſs will ſoon wear out, and decay in patches.

When turf is taken from a common or down, ſuch ought to be choſen as is free from weeds: and when it is deſigned to remain for years without renewing, a dreſſing ſhould be laid upon it every other year, either of very rotten dung, aſhes, or where it can be eaſily procured, very rotten tan; but theſe dreſſings ſhould be laid on early in the winter, that the rain may waſh them into the ground, otherwiſe they will occaſion the Graſs to burn, when the warmth of the ſummer begins. Where Graſs is ſo dreſſed, and kept well rolled and mowed, it may be kept very beautiful for many years; but where it is not dreſſed, or fed with ſheep, it will rarely continue handſome more than eight or ten years.

GRASS *of Parnaſſus*, *Parnaſſia*, a genus of plants, of which there are two ſpecies. 1. Common Marſh Graſs of Parnaſſus. 2. Graſs of Parnaſſus, with double flowers.

The firſt ſpecies grows wild in moiſt meadows, in ſeveral parts of England, but particularly in the north.

The ſecond ſpecies ſeems to be an accidental variety of the firſt. It grows wild, as the former ſort, but is rarely to be found.

Culture of the GRASS *of Parnaſſus.*

Theſe plants may be taken up from the natural places of their growth, with balls of earth to their roots, and planted into pots filled with pretty ſtrong, freſh, undunged earth, and placed in a ſhady ſituation, where, if they are conſtantly watered, they will thrive very well and flower every ſummer; but if the plants are planted in the full ground, it ſhould be in a very moiſt, ſhady border, otherwiſe they will not thrive; and theſe ſhould be as duly watered, as thoſe in the pots in dry weather, to make them produce ſtrong flowers.

They may be propagated by parting of their roots, which ſhould be done in March, before they put out new leaves, but the roots ſhould not be divided too ſmall, for that will prevent their flowering the following ſummer. Theſe roots ſhould always be planted in pretty ſtrong freſh earth, for they will not thrive in a light, rich ſoil. In the ſpring they muſt be conſtantly watered, if the ſeaſon ſhould prove dry, otherwiſe they will not flower; nor ſhould they be parted oftener than every third year, to have them ſtrong. Theſe plants flower in July, and their ſeeds are ripe the latter end of Auguſt.

Mountain Knot GRASS, *Paronichia*, a genus of plants, of which there are two ſpecies. 1. Mountain Knot Graſs, with flowers ſitting cloſe to the wings of the ſtalk, having neat bracteæ and trailing ſtalks. 2. Mountain Knot Graſs, with diffuſed trailing ſtalks, flowers growing in cluſters, whoſe bracteæ are very neat.

There are two or three others, ſpecies of this genus, which grow naturally in the ſouth of France and Italy, which having little beauty, are rarely admitted into gardens, ſo it would be needleſs to enumerate them here.

The firſt ſpecies grows naturally in Spain; this hath trailing ſtalks, like thoſe of the common Knot Graſs, which are a foot and a half long, putting out ſeveral ſide branches, which are garniſhed with ſmall leaves, like thoſe of the common Knot Graſs, but ſmaller, ſitting cloſe to the ſtalks. The flowers come out at the wings of the leaves, ſitting cloſe to the ſtalks; theſe have ſilvery neat bracteæ, which incloſes the flowers, which are ſo ſmall as not to be viſible, unleſs they are cloſe to the ſight. The flowers appear in July.

The ſecond ſort grows naturally in Spain; the ſtalks of this plant are larger, and the branches more diffuſed than thoſe of the firſt ſort, but trail upon the ground in the like manner. The flowers come out in cloſe cluſters upon ſhort foot-ſtalks, from the ſide of the branches, ſurrounded by leaves ſhaped like thoſe of the Knot Graſs; the bracteæ of theſe flowers are ſilvery and neat, like thoſe of the firſt ſort.

Culture of the Mountain Knot GRASS.

Theſe plants ſeldom continue longer than two or three years, and rarely ripen ſeeds here, except in warm dry ſeaſons, but cuttings of them will take root. The plants will riſe from ſeeds in the open air, and will live abroad in mild winters, but in hard froſts they are deſtroyed.

Viper's GRASS, *Scorzonera*, a genus of plants, ranged by Linnæus among the *ſyngeneſia polygamia æqualis*, and of which there are eight ſpecies, one only of which is cultivated in gardens, viz: Viper's Graſs, with a branching ſtalk, and ſerrulated entire leaves, embracing the ſtalks.

This ſpecies is a native of Spain and Siberia.

Culture of the Viper's GRASS.

It is a perennial plant, and is propagated by ſowing the ſeeds about the beginning of April, upon a ſpot of light, freſh ſoil.

When the plants are come up, they ſhould be weeded and thinned, ſo as to be left half a foot aſunder, after which they will require no other culture but to be kept clean from weeds.

GRAVEL, in gardening, a congeries of pebbles, which, mixed with a ſtiff loam, makes laſting and elegant walks, an ornament peculiar to our gardens, and what gives them the advantage over thoſe of other nations. There are many different opinions about the choice of gravel; ſome are for having it as white as poſſible, and in order to make the walks more ſo, cauſe them to be rolled with ſtone rollers, which are often hewn by the maſons, ſo as to add a whiteneſs to the walks; but this renders them troubleſome to the eye, by their reflecting too ſtrongly the rays of light; this, therefore, ſhould be avoided, and ſuch Gravel as will be ſmooth and reflect the leaſt, ſhould be preferred. There are ſome who ſcreen the Gravel too fine, but this is an error; for if it be caſt into a round heap, and the great ſtones only are raked off, it will be the better. There are ſome kinds of Gravel which do not bind, and by this means cauſe a continual trouble of rolling, to very little purpoſe; as for ſuch, if the Gravel be looſe or ſandy, you ſhould take one load of ſtrong loam, and two of Gravel, and ſo caſt them well together. The month of March is the propereſt time for laying Gravel; for it is not prudent to do it ſooner, or to lay walks in any of the winter months before that time. In making theſe walks, great regard muſt be had to the level of the ground, ſo as to lay the walks with eaſy deſcents towards the low parts of the ground, that the wet may be eaſily drained off: but when the ground is level, it will be proper to have ſink-ſtones laid by the ſides of the walks, and at convenient diſtances, to let off the wet; and when the ground is naturally dry, the drains from the ſink-ſtones may be contrived ſo as to convey the water into ſeſs-pools, from which the water will ſoak away in a ſhort time: but in wet lands, there ſhould be under-ground drains, to convey the water off, either into ponds, ditches, or the neareſt place proper to receive it. Some are apt to lay Gravel-walks too round; but this is an error, becauſe they are not ſo good to walk upon; and beſides, it makes them look narrow; one inch is enough in a crown for a walk of five feet: and it ſhould be ten feet wide, it lies two inches higher in the middle than it does on each ſide: if fifteen feet, three inches, if twenty feet, four inches, and ſo in proportion; for the depth of Gravel-walks, ſix or eight inches, may do well enough, and a foot in thickneſs will be ſufficient for any: but then there ſhould always be a depth of rubbiſh laid under the Gravel, eſpecially if the ground be wet. Some turn up Gravel-walks into ridges in December, in order to kill the weeds: but this is very wrong, ſince it never anſwers the end, and therefore, if conſtantly rolling them after rain and froſt, will not effectually kill the weeds and moſs, you ſhould turn the walk in March, and lay them down at the ſame time.

GREEN-HOUSE, or CONSERVATORY, a houſe in a garden, contrived for ſheltering and preſerving the moſt tender and curious exotic plants, which, in our climate, will not bear to be expoſed to the open air during the winter ſeaſon. Theſe are generally large and beautiful ſtructures, equally ornamental and uſeful.

The length of theſe houſes muſt be proportioned to the number of plants they are intended to contain; but their depth ſhould never be greater than their height in the clear, which, in ſmall or middling houſes, may be ſixteen or eighteen feet, and in large ones from twenty to twenty-four. The windows in front ſhould extend from about one foot and a half above the pavement, to within the ſame diſtance of the ceiling, which will admit of a corniche round the building, over the heads of the windows. In a ſmall green-houſe, the ſaſhes ſhould not be leſs than four or five feet broad; and in a large one, they ought not to exceed ſeven and a half; the ſhutters of which ought to fall back cloſe to the piers on the inſide, that, when open, they may not prevent any of the rays of light from reaching the plants. The piers between theſe windows, ſupporting the building, ſhould be as narrow as poſſible; for which reaſon they ſhould be either of ſtone or well-burnt brick. If they are of ſtone, they ought not to exceed two feet and a half in front, and ſhould be ſloped off backward to about eighteen inches broad, by which means the rays of the ſun will not be obſtructed by the corners of the piers, as they would be if they were ſquare: but if they are built of brick, it will be proper to make them near three feet in front, otherwiſe they will be too weak to ſupport the building: theſe I would alſo adviſe to be ſloped off in the manner directed for the ſtone.

At the back of the green-houſe, there may be erected an houſe for tools, and many other purpoſes; which will be extremely uſeful, and alſo prevent froſt from entering the houſe that way; ſo that the wall between theſe need not be more than two bricks and an half in thickneſs; whereas, were it quite expoſed behind, it ſhould be at leaſt three bricks in thickneſs; and by this contrivance, if you are willing to make an handſome building, and to have a noble room over the green-houſe, you may make the room over the tool-houſe, and carry up the ſtair-caſe in the back, ſo as not to be ſeen in the green-houſe; and hereby you may have a room twenty-five or thirty feet in width, and of a proportionable length: and under this ſtair-caſe, there ſhould be a private door into the green-houſe, at which the gardener may enter in hard froſty weather, when it will not be ſafe to open any of the glaſſes in the front. The floor of the green-houſe, which ſhould be laid either with marble, ſtone, or broad tiles, according to the fancy of the owner, muſt be raiſed two feet above the ſurface of the ground whereon the houſe is placed, which, in dry ground, will be ſufficient: but if the ſituation be moiſt and ſpongy, and thereby ſubject to damps, it ſhould be raiſed at leaſt three feet above the ſurface. and if the whole is arched with low brick arches under the floor, it will be of great ſervice in preventing the damps riſing in winter, which are often very hurtful to the plants, eſpecially in great thaws, when the air is often too cold to be admitted into the houſe, to take off the damps. Under the floor, about two feet from the front, I would adviſe a flue of about ten inches in width, and two feet deep, to be carried the whole length of the houſe, which may be returned along the back part, and be carried up in proper funnels adjoining to the tool-houſe, by which the ſmoak may paſs off. The fire-place may be contrived at one end of the houſe, and the door at which the fuel is put in, as alſo the aſh-grate, may be contrived to open into the tool-houſe, ſo that it may be quite hid from the ſight, and be in the dry, and the fuel be laid in the ſame place, whereby it will always be ready for uſe.

I ſuppoſe many people will be ſurpriſed to ſee me direct the making flues under a green-houſe, which has been diſuſed ſo long, and by moſt people thought of ill conſequence, as indeed they have often proved, when under the direction of unſkilful managers, who have thought it neceſſary, whenever the weather was cold, to make fires therein. But however injurious flues have been under ſuch management, yet, when ſkilfully managed, they are of very great ſervice: for though perhaps it may happen that there will be no neceſſity to make any fires in them for two or three years together, as, when the winters prove mild, there will not; yet, in very hard winters, they will be extremely uſeful to keep out the froſt, which cannot be effected any other way, but with great trouble and difficulty.

Withinſide of the windows, in front of the green-houſe, you ſhould have good ſtrong ſhutters, which ſhould be made with hinges, to fold back, that they may fall back quite cloſe to the piers, that the rays of the ſun may not be obſtructed thereby. Theſe ſhutters need not to be above an inch and a half thick, or little more; which, if made to join cloſe, will be ſufficient to keep out our common froſt: and when the weather is ſo cold as to endanger the freezing in the houſe, it is but making a fire in your flue, which will effectually prevent it: and without this conveniency it will be very troubleſome, as I have often ſeen, where perſons have been obliged to nail mats before their windows, or to ſtuff the hollow ſpace between the ſhutters and the glaſs with ſtraw, which, when done, is commonly ſuffered to remain till the froſt goes away; which, if it ſhould continue very long, the keeping the green-houſe cloſely ſhut up, will prove very injurious to the plants: and as it frequently happens, that we have an hour or two of ſun-ſhine in the middle of the day, in continued froſts, which is of great ſervice to plants, when they can enjoy the rays thereof through the glaſſes; ſo when there is nothing more to do than to open the ſhutters, which may be performed in a very ſhort time, and as ſoon ſhut again when the ſun is clouded, the plants may have the benefit thereof whenever it appears; whereas, where there is ſo much trouble to uncover, and as much to cover again, it would take up the whole time in uncovering and ſhutting them up, and thereby the advantage of the ſun's influence be loſt. Beſides, where there is ſo much trouble required to keep out the froſt, it will be a great chance if it be not neglected by the gardener: for if he be not as fond of preſerving his plants, and as much in love with them as his maſter, this labour will be thought too great by him; and if he takes the pains to cover the glaſſes up with mats, &c. he will not care to take them away again, until the weather alters; ſo that the plants will be ſhut up cloſe during the whole continuance of the froſt.

There are ſome people who commonly make uſe of pots filled with charcoal to ſet in their green-houſe in very ſevere froſts; but this is very dangerous to the perſons who attend theſe fires; and I have often known they have been almoſt ſuffocated therewith; and at the ſame time they are very injurious to the plants: nor is the trouble of attending upon theſe ſmall; and the many hazards, to which the uſe of theſe fires is liable, have juſtly brought them into diſuſe with all ſkilful perſons; and as the contrivance of flues, and of the fires, are but ſmall charges, they are much to be preferred to any other method for warming the air of the houſe.

The back part of the houſe ſhould be either laid over with ſtucco, or plaſtered with mortar, and white waſhed; for otherwiſe the air in ſevere froſt will penetrate through the walls, eſpecially when the froſt is attended with a ſtrong wind; which is often the caſe in the moſt ſevere winters. There are ſome perſons who are at the expence of wainſcoting their green-houſes; but, when this is done, it is proper to plaſter with lime and hair behind the wainſcot, to keep out the cold; and, when they are lined with wainſcoat, they ſhould be painted white, as ſhould the ceiling, and every part within-ſide of the houſe: for this reflects the rays of light in much greater quantity than any other colour, and is of ſignal ſervice to plants eſpecially in the winter, when the houſe is pretty much cloſed, and but a ſmall ſhare of light is admitted through the windows: for, at ſuch times, I have obſerved, that in ſome green-houſes which have been painted black, or of a dark colour, the plants have caſt moſt of their leaves.

Where green-houſes are built in ſuch places as will not admit of rooms over them, or the perſon is unwilling to be at the expence of ſuch building, there muſt be care taken to keep out the froſt from entering through the roof. To prevent which, it will be very proper to have a thickneſs of reeds, heath, or furze, laid between the ceiling and the tiles: in the doing of which, there muſt be care taken in framing the joiſts, ſo as to ſupport theſe, that their weight may not lie upon the ceiling, which might endanger it: for theſe ſhould be laid a foot thick at leaſt, and as ſmooth as poſſible, and faſtened down well with laths, to prevent their riſing; and then cover it over with a coat of lime and hair, which will keep out the air, and alſo prevent mice and other vermin, from harbouring in them; which, if left uncovered, they would certainly do. For want of this precaution, there are many green-houſes built, which will not keep out the froſt in hard winters; and this is many times attributed to the glaſſes in front admitting the cold, when the fault is in the roof: for where there is only the covering, either of tiles or ſlates, and the ceiling, every ſevere froſt will penetrate through them.

In this green-houſe you ſhould have treſſels, which may be moved out and into the houſe; upon which you ſhould fix rows of planks, ſo as to place the pots or tubs of plants in regular rows one above another, whereby the heads of the plants will be ſo ſituated as not to interfere with each other. The loweſt row of plants, which ſhould be the forwardeſt towards the windows, ſhould be placed about four feet therefrom, that there may be a convenient breadth left next the glaſſes to walk in front: and the rows of plants ſhould riſe gradually from the firſt, in ſuch a manner, that the heads of the ſecond rows ſhould be entirely advanced above the firſt, the ſtems only being hid thereby; and, at the backſide of the houſe, there ſhould be allowed a ſpace of at leaſt five feet, for the conveniency of watering the plants; as alſo to admit of a current of air round them, that the damps, occaſioned by the perſpiration of the plants may be the better diſſipated, which, by being pent in too cloſely, often occaſions a mouldineſs upon the tender ſhoots and leaves, and when the houſe is cloſe ſhut up, this ſtagnating rancid vapour is often very deſtructive to the plants: for which reaſon alſo you ſhould never croud them too cloſe to each other, nor ſhould you ever place ſedums, euphorbiums, torch thiſtles, and other tender ſucculent plants, amongſt oranges, myrtles, and other ever-green trees; for, by an experiment which I made anno 1729, I found that a ſedum, placed on a green-houſe among ſuch trees, almoſt daily increaſed its weight, although there was no water given to it the whole time; which increaſe of weight was owing to the moiſture imbibed from the air, which, being replete with the rancid vapours perſpired from the other plants, occaſioned the leaves to grow pale, and in a ſhort time they decayed, and dropped off; which I have often obſerved has been the caſe with many other ſucculent plants, when placed in thoſe houſes which were filled with many ſorts of ever-green-trees, that required to be frequently watered.

Therefore, to avoid the inconvenience which attends the placing of plants of very different natures in the ſame houſe, it will be very proper to have two wings added to the main green-houſe; which will greatly add to the beauty of the building, and alſo collect a greater ſhare of heat. The green-houſe ſhould be placed exactly fronting the ſouth; and one of the wings facing the ſouth-eaſt, and the other the ſouth-weſt; ſo that, from the time of the ſun's firſt appearance upon any part of the building, until it goes off at night, it is conſtantly reflected from one part to the other; and the cold winds are alſo kept off from the front of the main green-houſe hereby: and, in the area of this place, you may contrive to place many of the moſt tender exotic plants, which will bear to be expoſed in the ſummer ſeaſon: and in the ſpring, before the weather will permit you to ſet out the plants, the beds and borders of this area may be full of anemonies, ranunculus's, early tulips, &c. which will be paſt flowering, and the roots fit to take out of the ground, by the time you carry out the plants; which will render this place very agreeable during the ſpring ſeaſon that the flowers are blown; and here you may walk and divert yourſelf in a fine day, when, perhaps the air in moſt other parts of the garden will be too cold for perſons not much uſed thereto, to take pleaſure in being out of the houſe.

In the center of this area may be contrived a ſmall baſon for water, which will be very convenient for watering of plants, and add much to the beauty of the place: beſides, the water, being thus ſituated, will be ſoftened by the heat, which will be reflected from the glaſſes upon it; whereby it will be rendered much better than raw, cold water, for theſe tender plants.

The two wings of the building ſhould be contrived ſo as to maintain plants of different degrees of hardineſs; which muſt be effected by the ſituation and the extent of the fire-place, and the manner of conducting the flues.

But I would here obſerve, that the wing facing the ſouth-eaſt ſhould always be preferred for the warmeſt ſtove; its ſituation being ſuch, as that the ſun, upon its firſt appearance in the morning, ſhines directly upon the glaſſes; which is of great ſervice in warming the air of the houſe, and adding life to the plants, after having been ſhut up during the long nights in the winter ſeaſon. Theſe wings, being ſixty feet in length, may be divided in the middle by partitions of glaſs, with glaſs doors to paſs from one to the other. To each of theſe there ſhould be a fire-place, with flues carried up againſt the back wall, through which the ſmoke ſhould be made to paſs, as many times the length of the houſe, as the height will admit of the number of flues; for the longer the ſmoke is in paſſing, the more heat will be given to the houſe, with a leſs quantity of fuel; which is an article worth conſideration, eſpecially where fuel is dear. By this contrivance, you may keep ſuch plants as require the ſame degree of heat in one part of the houſe, and theſe will thrive in a much leſs warmth in the other part.

The other wing of the houſe, facing the ſouth-weſt, may alſo be divided in the ſame manner, and flues carried through both parts, which may be uſed according to the ſeaſons, or the particular ſorts of plants which are placed therein; ſo that here will be four diviſions in the wings, each of which may be kept up to a different degree of warmth: which, together with the green-houſe, will be ſufficient to maintain plants from all the ſeveral countries of the world; and, without having theſe ſeveral degrees of warmth, it will be impoſſible to preſerve the various kinds of plants from the ſeveral parts of Africa and America, which are annually introduced into the Engliſh gardens; for when plants from very different countries are placed in the ſame houſe, ſome are deſtroyed for want of heat, while others are forced and ſpoiled by too much of it; and this is often the caſe in many places, where there are large collections of plants.

In the building theſe wings, if there are not ſheds running behind them their whole length, the walls ſhould not be leſs than two bricks thick; and if they are more, it will be better; becauſe, where the walls are thin, and expoſed to the open air, the cold will penetrate them; and when the fires are made, the heat will come out through the walls; ſo that it will require a larger quantity of fuel to maintain a proper temperature of warmth in the houſe. The back part of theſe houſes, having ſloping roofs, which are covered either with tiles or ſlates, ſhould alſo be lined with reeds, &c. under the covering, as is before directed for the green-houſe; which will keep out the cold air, and ſave a great expence of fuel; for the cloſer and better theſe houſes are built, and the glaſſes of the ſlope, as alſo in front, well guarded by ſhutters or reeds in a hard froſt, the leſs fuel will be required to warm the houſes; ſo that the firſt expence of building theſe houſes properly will be the cheapeſt, when the after expence of fires is taken into conſideration.

The ſloping glaſſes of theſe houſes ſhould be made to ſlide, and take off; ſo that they may be drawn down more or leſs, in warm weather, to admit air to the plants; and the upright glaſſes in front may be ſo contrived, as that every other may open as doors upon hinges; and the alternate glaſſes may be divided into two: the upper part of each ſhould be contrived ſo as to be drawn down like ſaſhes; ſo that either of theſe may be uſed to admit air, in a greater or leſs quantity, according as there may be occaſion.

But, beſides the conſervatories here mentioned, it will be proper to have a deep hot-bed frame, ſuch as is commonly uſed to raiſe large annuals in the ſpring: into which may be ſet pots of ſuch plants as come from Carolina, Virginia, &c. while the plants are too ſmall to plant in the open air; as alſo many other ſorts from Spain, &c. which require only to be ſcreened from the violence of the froſts, and ſhould have as much free air as poſſible in mild weather: which can be no better effected than in one of theſe frames, where the glaſſes may be taken off every day when the weather will permit, and put on every night; and in hard froſts, the glaſs may be covered with mats, ſtraw, peaſe-haulm, or the like, ſo as to prevent the froſt from entering the pots to freeze the roots of the plants, which is what will many times utterly deſtroy them; though a ſlight froſt pinching the leaves or ſhoots very ſeldom does them much harm: if theſe are ſunk a foot or more below the ſurface of the ground, they will be the better, provided the ground is dry; otherwiſe they muſt be wholly above ground. The ſides of this frame ſhould be built with brick, with a curb of wood laid round on the top of the wall, into which the gutters, on which the glaſſes ſlide may be laid; the back wall of this frame may be four feet high, and the front one foot and a half; the width about ſix feet, and the length in proportion to the number of plants. *Miller's Gard. Dict.*

GREWIA, a genus of plants for which we have no Engliſh name; ranged by Linnæus among the *gynandria polyandria*, and of which he enumerates only two ſpecies. 1. Grewia with oval crenated leaves. 2. Grewia with oval ſpear-ſhaped leaves, which are ſerrated.

The firſt ſpecies grows naturally at the Cape of Good Hope; it riſes to the height of ten or twelve feet, the ſtem and branches are very like thoſe of the ſmall Elm, the bark being ſmooth, and of the ſame colour as that when young; the leaves are alſo very like thoſe of the Elm, and fall off in autumn; the flowers are produced ſingly along the young branches, from the wings of the leaves, which are of a bright purple colour.

The ſecond ſpecies is a native of the Eaſt and Weſt Indies, and of Africa; it is a very elegant little ſhrub, and from its handſome growth, as well as the ſingularity of its flowers, deſerves a place in every collection.

It grows about five feet high, and ſpreads in a pleaſing manner into branches. The bark of the main ſtem is greyiſh, and that of the young ſhoots brown, and often purpliſh; they are very ſlender, and are armed with a few ſlight, and almoſt harmleſs thorns. The leaves are placed with pleaſing irregularity, ſometimes in pairs; ſometimes alternately; they are an inch and a half long, and an inch broad. They have ſhort footſtalks, and their colour is a pale but pleaſing green. Their edges are ſerrated, and they are pointed at the ends. The flowers are ſcattered over various parts of the ſhrub; they are large, open, and of a pale purple, with a great cluſter of yellow buttons in the centre. This flower is placed in a five-leaved cup, of a firm tough ſubſtance, and coloured on the inner ſide; and is ſucceeded by a fruit of the berry kind, but ſquare, and divided within into four cells. The petals of the flower are properly five, but they are ſo mixed among the leaves of the cup, and thoſe are ſo large and coloured, that the flower appears to conſiſt of twice that number.

Culture of the GREWIA.

The firſt ſpecies is propagated by cuttings, or layers; if by cuttings they ſhould be taken off, and planted in March, before the buds begin to ſwell, for they do not ſucceed ſo well after; theſe cuttings ſhould be planted in ſmall pots filled with loamy earth, and the pots plunged into a moderate hot-bed of tanners bark, and ſhaded from the ſun in the middle of the day; theſe will take good root in about four months, and may then be gradually inured to bear the open air; into which they ſhould be removed, and placed in a ſheltered ſituation, where they may remain till autumn, when they muſt be removed into the green-houſe; the beſt time to lay down the layers of this plant is in the ſpring before the buds come out, and theſe will be rooted by the ſame time the following year, when they may be cut off from the old plants, and planted each into a ſeparate pot filled with ſoft loamy earth.

The beſt time to remove or tranſplant this plant is, either in the ſpring, juſt before the buds begin to ſwell, or in autumn when the leaves begin to drop; for in ſummer, when the plants are in full leaf, it will not be ſo proper to diſturb them.

In winter theſe plants ſhould be placed in the green-houſe, for they are too tender to live abroad in England; but they ſhould have as much free air as poſſible in mild weather, as they only require to be protected from froſt, and after the leaves are fallen they will require very moderate watering; but in ſummer they ſhould have it more conſtantly in dry weather.

The ſecond ſpecies may be raiſed from ſeeds: they muſt be ſown in ſpring on a moderate hot-bed. The plants, when come up, muſt have a little water carefully given them; and when they have gained a little ſtrength, they muſt be tranſplanted into pots filled with the following compoſt: equal parts of garden-mould and river-mud, with a ſmall ſprinkling of coarſe ſand; this ſhould be mixed at the time the ſeeds are ſown in the hot-bed.

Set the pots up to the rim in a bark-bed of a moderate heat, and ſhaded till they are well rooted: from this bed, when they have gained ſome height, they muſt be removed into another, firſt planting them into larger pots; and when they have been ſhaded in this, and watered till they have taken good root, they muſt be by degrees inured to the air. In the height of ſummer they may be expoſed among the green-houſe plants; but before the leaſt approach of cold, they muſt be houſed, firſt taken into the green-houſe, and then into the ſtove.

This ſpecies may alſo be propagated by layers, in which method there is nothing particular, only obſerve to lay them into pots of the ſame compoſt; and when they have taken ſufficient root, they may be treated in all reſpects as the others. This ſhrub will bear the open air, but it will never flower ſo well as in the ſtove.

GROTTO, a ſmall artificial edifice made in a garden, in imitation of a natural Grotto. The outſides of theſe Grottos are uſually adorned with ruſtic architecture, and their inſide with ſhell-work, coral, &c. and alſo furniſhed with various fountains and other ornaments. The following is eſteemed a good cement for Grotto-work.

Take two parts of white roſin, melt it clear, add to it four parts of bees-wax: when melted together, add ſome duſt of the ſtone you deſign to cement, two or three parts, or ſo much as will give the cement the colour of the ſtone: to this add one part of the flower of ſulphur; firſt incorporate all together over a gentle fire, and afterwards knead it with your hands in warm water; with this faſten the ſtones, ſhells, &c. after they are well dried, and warmed before the fire.

GROVE, a ſmall wood impervious to the rays of the ſun.

Groves are the greateſt ornaments of a garden; nor can a garden be complete that has not one or more of theſe. In ſmall gardens there is ſcarce room to admit of groves of any extent; yet in theſe there ſhould be at leaſt one contrived, which ſhould be as large as the ground will allow of; and where theſe are ſmall, there is more ſkill required in the diſpoſition, to give them the appearance of being larger than they really are.

Groves are of two ſorts, viz. open and cloſe; open Groves are ſuch as have large ſhady trees, which ſtand at ſuch diſtances, as that their branches may approach ſo near to each other, as to prevent the rays of the ſun from penetrating through them: but as ſuch trees are a long time in growing to a proper ſize for affording a ſhade, ſo where new Groves are planted, the trees muſt be placed cloſer together, in order to have ſhade as ſoon as poſſible; but in planting of theſe Groves, it is much the beſt way to diſpoſe all theſe trees irregularly, which will give them a greater magnificence, and alſo form a ſhade ſooner than when the trees are planted in lines; for when the ſun ſhines between the rows of trees, as it muſt do ſome part of the day in ſummer, the walks between them will be expoſed to the heat, at ſuch times, until the branches of theſe trees meet; whereas, in the irregular plantations, the trees intervene, and obſtruct the direct rays of the ſun.

When a perſon, who is to lay out a garden, is ſo happy as to meet with large full grown trees upon the ſpot, they ſhould remain inviolate, if poſſible; for it will be better to put up with many inconveniencies, than to deſtroy theſe, which will require an age to retrieve; ſo that nothing but that of offending the habitation, by being ſo near as to occaſion great damps, ſhould tempt the cutting them down.

Moſt of the Groves which have been planted in England, or thoſe celebrated gardens in France, are only a few regular lines of trees, many of which join to the habitation, or lead to ſome building, or other object: but theſe do not appear ſo grand, as thoſe which have been made in woods, where the trees have grown accidentally, and at irregular diſtances, where the trees have large ſpreading heads, and are left at ſuch diſtance as to permit the graſs to grow under them, then they afford the greateſt pleaſure; for nothing is more noble than fine ſpreading trees with large ſtems, growing through graſs, eſpecially when the graſs is well kept, and has a good verdure; beſides moſt of theſe planted Groves have generally a gravel walk, made in a ſtrait line between them; which greatly offends the ſight of perſons who have a true taſte: therefore, whenever a gravel walk is abſolutely neceſſary to be carried through theſe Groves, it will be much better to twiſt it about, according as the trees naturally ſtand, than to attempt regularity: but dry walks under large trees are not ſo uſeful as in open places; becauſe the dropping of the trees will render theſe walks uſeleſs, after rain, for a conſiderable time.

Cloſe Groves have frequently large trees ſtanding in them; but the ground is filled under theſe with ſhrubs, or underwood; ſo that the walks which are made in them are private, and ſcreened from the winds, whereby they are made agreeable for walking, at ſuch times when the air is too violent or cold for walking in the more expoſed part of the garden.

Theſe are often contrived ſo as to bound the open Groves, and frequently to hide the walls, or other incloſures of the garden: and when they are properly laid out, with dry walks winding through them, and on the ſides of theſe ſweet ſmelling ſhrubs and flowers irregularly planted, they have a charming effect; for here a perſon may walk in private, ſheltered from the inclemency of cold or violent winds, and enjoy the greateſt ſweets of the vegetable kingdom: therefore, where it can be admitted, if they are continued round the whole encloſure of the garden, there will be a much greater extent of walk: and theſe ſhrubs will appear the beſt boundary where there are not fine proſpects to be gained.

Theſe cloſe Groves are by the French termed boſquets, from the Italian word boſquetto, which ſignifies a little wood; and in moſt of the French gardens there are many of theſe planted; but theſe are reduced to regular figures, as ovals, triangles, ſquares, and ſtars: but theſe have neither the beauty or uſe which thoſe have that are made irregularly, and whoſe walks are not ſhut on each ſide by hedges, which prevents the eye from ſeeing the quarters; and theſe want the fragrancy of the ſhrubs and flowers, which are the great delight of theſe private walks; add to this the keeping of the hedges in good order, is attended with a great expence; which is a capital thing to be conſidered in the making of gardens. *Miller's Gard. Dict.*

GROUND-PINE, a ſpecies of Tree Germander. See the article *Tree* GERMANDER.

GROUNDSEL, *Erigeron*, a genus of plants, ranged by Linnæus among the *ſyngeneſia polygamia ſuperflua*, and of which there are twelve ſpecies. 1. Groundſel, with one flower on a foot-ſtalk, proceeding from the ſide of the ſtalk, and a rough cup. 2. Groundſel, with a paniculated ſtalk, ſingle flowers terminating the branches, and entire narrow leaves. 3. Groundſel, with a paniculated ſtalk and flowers. 4. Groundſel, with the leaves curved at their baſe. 5. Groundſel, with many flowers upon a ſtalk, ſpear-ſhaped, ſawed leaves, and the ſtalk-leaves half embracing the flowers. 6. Groundſel, with one flower upon alternate foot-ſtalks. 7. Groundſel, with two flowers on a ſtalk, and a hairy cup. 8. Groundſel, with one flower upon a ſtalk, and a hairy cup. 9. Groundſel, with one flower upon a ſtalk, and narrow, hairy, rough leaves. 10. Groundſel, with the flower-ſcales of the cup looſe, and exceeding the flower. 11. Groundſel, with ſpear-ſhaped, oval, hairy leaves, and cartilaginous ſerratures at the top. 12. Groundſel, with ſpear-ſhaped leaves, one flower upon a branch, and a ſhrubby ſtalk.

The firſt and ſecond ſorts are perennial plants, the firſt grows naturally in France, Spain, and Italy: and the ſecond is a native of Carolina.

The third and fourth ſorts are annual plants, and natives of America.

The fifth, ſixth, ſeventh, eighth, and ninth ſpecies, are perennial plants. The tenth grows naturally in marſhy places in Sicily.

The eleventh is a native of Virginia, and the twelfth of France and Syria.

Culture of this GROUNDSEL.

The two firſt ſpecies are propagated by ſeeds ſown ſoon after they are ripe; when the plants come up, let them be thinned where they grow too cloſe, and kept clear from weeds, and the next autumn they may be tranſplanted to the places in which they are deſigned to remain, which ſhould be in a dry ſoil and a ſunny expoſure. The third and fourth ſorts are only preſerved in botanic gardens for the ſake of variety. The fifth, ſixth, ſeventh, eighth, and ninth, are ſeldom admitted into gardens: the reſt are annuals.

The tenth, eleventh, and twelfth, may be propagated by ſowing the ſeeds, but they are ſeldom cultivated in gardens.

GROUNDSEL, *Senecio*. Of this genus there are, according to Linnæus, twenty-ſeven ſpecies, ſixteen of which are cultivated in gardens. 1. Groundſel, with naked petals, torn leaves embracing the ſtalk, and an erect herbaceous ſtalk. 2. Groundſel, with naked florets, and a very long foot-ſtalk, which is almoſt naked, called China Root. 3. Groundſel, with radiated flowers, and crenated leaves, the lower ones of which are heart-ſhaped, and have foot-ſtalks, but the upper lyre-ſhaped and wing-pointed. 4. Groundſel, with radiated flowers three times the length of the leaves, and winged ſinuated leaves. 5. Groundſel, with radiated flowers, wing-pointed leaves, which are equal, and the midrib below narrowed. 6. Groundſel, with radiated flowers, and wing-pointed, multifid, linear leaves. 7. Groundſel, with radiated flowers, ſword-ſhaped leaves, which are acutely ſawed, a little hairy on their underſide, and a cloſe ſtalk. 8. Groundſel, with radiated flowers growing in a corymbus, and ſpear-ſhaped, ſawed, ſmooth leaves. 9. Groundſel, with radiated flowers growing in a corymbus, and ſpear-ſhaped, ſawed leaves, half embracing the ſtalk. 10. Groundſel, with radiated flowers growing in a corymbus, and ſword-ſhaped indented leaves, which half embrace the ſtalks. 11. Groundſel, with radiated flowers growing in a corymbus, the lower leaves oblong, heart-ſhaped, ſawed, and thoſe on the ſtalks ſpear-ſhaped, entire, embracing the ſtalks. 12. Groundſel, with radiated flowers, half-winged leaves, which are downy on both ſides, ſegments which are ſomewhat indented, and a roundiſh corymbus of flowers. 13. Groundſel, with radiated flowers, oblong, heart-ſhaped, rough-pointed, ſawed leaves, embracing the ſtalks, which are ſhrubby. 14. Groundſel, with radiated flowers, arrow-pointed indented leaves, embracing the ſtalks, which are ſhrubby. 15. Groundſel, with radiated flowers, oval, fleſhy leaves, which are ſomewhat indented, and a ſhrubby ſtalk. 16. Groundſel, with naked flowers, linear hairy leaves, growing in cluſters, and an under-ſhrub ſtalk.

The firſt ſort grows naturally in North America; this is an annual plant: the ſtalk is round channelled and hairy; it riſes three feet high, is garniſhed with torn leaves, which embrace the ſtalks with their baſe; the flowers are produced in a ſort of umbel on the top of the ſtalks, compoſed of florets, having no rays; they are of a dirty white, and are ſucceeded by oblong ſeeds, crowned with a long down.

The ſecond ſpecies is a native of Madraſs: this has a perennial root, which is compoſed of ſome thick fleſhy tubres, ſending out many fibres; the leaves are ſhaped like thoſe of the Turnep, but are ſmooth. The flower ſtalk is ſlender, almoſt naked, and riſes a foot and a half high, ſuſtaining at the top a few yellow flowers, compoſed of ſeveral hermaphrodite florets, having no rays or borders; theſe are ſucceeded by oval ſeeds, crowned with down, but they rarely ripen in England.

The third ſort is a native of North America; this hath a perennial root, from which come out many roundiſh leaves upon long, ſlender, hairy foot-ſtalks, of a purpliſh colour on their under ſide, crenated on their edges. The ſtalks riſe near two feet high, garniſhed with a few leaves, which are indented on each ſide in form of a lyre; the upper part of the ſtalk divides into ſeveral ſlender long foot-ſtalks, each ſuſtaining one erect flower, compoſed of ſeveral hermaphrodite florets in the center, and a few female florets from the rays or border. They are yellow, and are ſucceeded by ſeeds, crowned with down.

The fourth ſpecies is a native of Africa; this has an herbaceous perennial ſtalk, which riſes about two feet and a half high, garniſhed at bottom with narrow leaves, which are ſituated on the ſides, ſo as to reſemble winged leaves. The upper leaves are ſmall, and embrace the ſtalks; they are very clammy, and ſtick to the fingers on being handled; the upper part of the ſtalk divides into ſeveral very long foot-ſtalks, each ſuſtaining one yellow radiated flower. The plants continue in flower moſt part of the ſummer, and the ſeeds ſometimes ripen in autumn.

The fifth ſort grows naturally at the Cape of Good Hope; it is an annual plant, which hath many herbaceous branching ſtalks, that riſe near three feet high, garniſhed with equal wing-pointed leaves. The flowers are produced in bunches on the top of the ſtalks; they are large and radiated, the borders or rays being of a beautiful purple colour, and the middle of a diſk yellow. Theſe plants flower from July till the froſt ſtops them, and make a fine appearance.

The ſixth ſpecies grows naturally on the Alps and Pyrenees; this hath a perennial root and an annual ſtalk. The root is compoſed of a great number of long ſlender fibres; the ſtalks riſe two feet high, and become a little ligneous in autumn: they are garniſhed with very narrow wing-pointed leaves; the flowers are yellow, and are produced in bunches on the top of the ſtalks; they have rays or borders, reſembling thoſe of the other ſpecies.

The ſeventh ſort grows naturally about Paris, by the ſides of waters and in moiſt meadows. The root is perennial; the ſtalks riſe three or four feet high, are cloſe channelled, and garniſhed with ſword-ſhaped leaves, which are hairy, and ſharply ſawed on their edges; the upper part of the ſtalk divides into ſeveral ſlender foot-ſtalks, ſuſtaining yellow radiated flowers, which are ſucceeded by downy ſeeds in autumn, ſoon after which the ſtalks decay to the root.

The eighth ſort grows naturally on the Helvetian mountains, and is ſometimes found growing in low marſhy places, in the iſle of Ely. This hath a creeping root, by which it ſpreads wherever it is once eſtabliſhed; the ſtalks of this riſe four feet high, garniſhed with ſmooth, ſpear-ſhaped leaves, ſawed on their edges, and placed alternate. The flowers are yellow, radiated, and are produced in a ſort of corymbus on the top of the ſtalk, which are ſucceeded by ſeeds, having down.

The ninth ſpecies is a native of France: this has ſome reſemblance to the eighth, but the root does not creep like that. The leaves are ſhorter; the ſerratures on their edges are very ſmall: they embrace the ſtalks with their baſe, and end in ſharp points. The flowers are produced in larger and looſer bunches on the top of the ſtalk, and are of a paler yellow colour than thoſe of the former.

The tenth ſpecies grows naturally in the Levant; this hath a perennial root. The lower leaves are long, ſmooth, and ſomewhat ſhaped like a ſcymitar, the midrib being curved outward towards the point, and ſlightly indented on their edges; the ſtalk riſes ſix feet high, garniſhed with leaves, growing ſmaller towards the top of the ſtalk. The flowers terminate the ſtalk in a compact corymbus; they are of a deep yellow, and have rays like thoſe of the former ſorts.

The eleventh ſort is a native of North America; this has a perennial root, from which come out ſmooth, heart-ſhaped leaves, ſlightly indented on their edges, a little downy on their under ſide. The ſtalk riſes three feet high, garniſhed with ſpear-ſhaped, entire leaves, embracing them; the flowers terminate the ſtalk in a cloſe compact corymbus; they are of a deep yellow colour, and are ſucceeded by ſeeds, which ripen in autumn.

The twelfth ſort grows naturally on the Alps; this is a perennial plant, of low growth. The ſtalks ſeldom riſe a foot high; the whole plant is covered with a very white hoary down; the leaves are winged and indented; the flowers are collected into a cloſe round corymbus, on the top of the ſtalk, of a gold colour, and are radiated; theſe are rarely ſucceeded by good ſeeds in England.

The thirteenth ſpecies is a native of the Cape of Good Hope; this riſes with a ſhrubby, branching ſtalk, ſix or ſeven feet high, cloſely garniſhed with rough leaves, whoſe baſe embraces the ſtalks; they are ſtiff, hairy, of a dark green colour, oblong, heart-ſhaped, and indented on their edges. The flowers are produced at the end of the branches, which are of a bright yellow colour, and are ſucceeded by ſeeds in autumn.

The fourteenth ſort grows naturally at the Cape of Good Hope. This hath a very branching ſhrubby ſtalk, which riſes four or five feet high, garniſhed with ſtiff leaves, whoſe baſe embraces the ſtalks; they are irregular in their figure, deeply cut on their edges, and of a grey colour on their under ſide. The flowers grow in looſe bunches at the end of the branches, of a pale yellow colour. This ſort flowers great part of ſummer, and the ſeeds ripen in autumn.

The fifteenth ſpecies is a native of the Cape of Good Hope. This has a ſhrubby ſtalk, which riſes ſeven or eight feet high, garniſhed with oblong oval leaves, indented on their edges. The flowers are produced in looſe bunches at the extremity of the branches, almoſt in the form of an umbel; they are of a pale yellow colour.

The ſixteenth ſort grows naturally at the Cape of Good Hope. This is a perennial plant from whoſe roots ariſe ſeveral hairy herbaceous ſtalks four feet high, garniſhed with hairy linear leaves in cluſters, which ſit cloſe to the branches; they are of a deep green on their upper ſide, and pale on their under. The flowers are produced at the end of the branches in cloſe bunches, formed like umbels of a gold colour, but have no rays or borders, only hermaphrodite florets, which are included in one common impalement.

Culture of the GROUNDSEL.

The firſt ſpecies may be propagated by ſowing the ſeeds on a hot-bed in the ſpring, and when the plants are come up fit to remove, they ſhould be tranſplanted to another hot-bed to bring them forward, and afterwards they may be planted in a warm border, where they will flower in July, and their ſeeds will ripen in autumn. This plant is ſeldom in other than botanic gardens for the ſake of variety.

The ſecond ſpecies is propagated by parting the roots in the ſpring. The off-ſets ſhould be planted in pots, filled with light earth, and plunged into the tan-bed in the ſtove, and treated in the ſame way as other tender exotics.

The third ſort is propagated by off-ſets, which come out in plenty from the root; theſe may be ſeparated in autumn, and planted in an eaſt border, allowing each plant two feet room to ſpread. When they have taken new root, they will require no other care, but to keep them clean from weeds.

The fourth ſpecies may be propagated by cutting off the ſide ſhoots in any of the ſummer months, and planting them in a ſhady border, where in ſix weeks they will root, and may then be taken up, and planted in pots, placing them in the ſhade till they have taken new root; then they may be removed to an open ſituation, and in autumn they muſt be placed under a frame, where they may be ſcreened from hard froſts, for they will not live abroad in winter here.

The fifth ſort is propagated by ſowing the ſeeds in the ſpring, and when the plants are fit to remove they may be tranſplanted about the border of the flower-garden. The ſeeds ripen in autumn, which, if permitted to ſcatter, there will plenty of plants riſe the ſpring following without further care.

The ſixth ſpecies is propagated by ſeeds, which ſhould be ſown upon a bed of loamy earth, where it is expoſed only to the morning ſun, and the plants will riſe better than in a warmer ſituation. When the plants are fit to remove, they may be tranſplanted in a ſhady border, where they may remain till autumn, obſerving to keep them clear from weeds all the ſummer; then they ſhould be tranſplanted to the place where they are to remain. The following ſummer the plants will flower and produce ripe ſeeds, and the roots will continue, if they are in a ſhady ſituation and a loamy ſoil.

The ſeventh, eighth, ninth, tenth, and eleventh ſpecies are eaſily propagated by ſeeds or parting of their roots; the latter is generally practiſed when the plant is once obtained, as that is the moſt expeditious method, eſpecially for the eighth ſort, whoſe roots are apt to ſpread and encreaſe too faſt, where they are not confined. The beſt time to tranſplant and divide theſe roots is in autumn, when their ſtalks decay, that they may get good rooting before the ſpring. Theſe plants are too large for ſmall gardens, ſo are proper furniture for large borders in extenſive gardens, for they ſhould have at leaſt four feet allowed to each.

The twelfth ſpecies is propagated by ſlipping off the head in the autumn, and planting them in a bed of loamy earth in a ſhady ſituation, where they will put out roots, and may afterwards be tranſplanted into an eaſt border, where they may have the morning ſun only, for this plant loves a gentle loamy ſoil, and a ſituation not too much expoſed to the ſun.

The thirteenth, fourteenth, fifteenth, and ſixteenth ſpecies are propagated by ſeeds or cuttings, but the latter being the moſt expeditious method is generally practiſed. If the cuttings are planted in a ſhady border during any of the ſummer months, they will readily take root; they then ſhould be taken up, and each planted in a ſeparate pot, and placed in the ſhade till they have taken new root: then they may be removed to a more open ſituation, where they may remain till there is danger of ſharp froſt, when they ſhould be removed into the green-houſe, for they are too tender to live in the open air through the winter in England.

African-tree GROUNDSEL, a ſpecies of foreign Coltsfoot. See the article FOREIGN COLTSFOOT.

GUAJACUM, *Lignum Vitæ*, or *Pockwood*, a genus of plants of which there are three ſpecies. 1. Guajacum with obtuſe lobes placed by pairs. 2. Guajacum with many pair of obtuſe lobes. 3. Guajacum with many pair of acute-pointed leaves.

The firſt and ſecond ſpecies are natives of moſt of the iſlands in the Weſt-Indies. The firſt is a large tree; the bark is hard, brittle, browniſh, and not very thick. The wood is firm, ſolid, ponderous, very reſinous, of a blackiſh yellow colour in the middle, and has a hot aromatic taſte. The ſmaller branches have an aſh-coloured bark, the leaves are divided by pairs, each pair having two pair of ſmall, oval, blunt pinnæ, of a ſtiff conſiſtence, and a lucid green. The flowers are produced in cluſters at the ends of the branches, compoſed of five oval concave petals of a fine blue colour. This tree is the common Lignum Vitæ, or Guajacum of the ſhops.

The ſecond ſpecies has many ſmall leaves placed along the midrib by pairs, which are rounded and obtuſe at their ends, but narrow at their baſe: they are of the ſame conſiſtence as thoſe of the former ſort, but of a darker green. The flowers are produced in looſe bunches towards the end of the branches; they are of a fine blue colour, and their petals are fringed on their edges.

The third ſpecies grows naturally at the Cape of Good Hope, and has long been an inhabitant of ſome curious gardens both in England and Holland. It retains its leaves, which are of a beautiful green, all the year; but ſeldom produces flowers here.

Culture of the GUAJACUM.

The firſt and ſecond ſpecies can only be propagated by ſeeds, which muſt be procured from the countries where they naturally grow, as freſh as poſſible, otherwiſe they will not ſucceed. Theſe ſhould be ſown in pots, and plunged into a good hot-bed. If the ſeeds are good, and the bed of a proper temperature of heat, the plants will appear in ſix or eight weeks after, and in ſix weeks or two months more will have attained ſtrength ſufficient for tranſplanting, when they ſhould be carefully taken out of the pots, ſo as to preſerve their roots as entire as poſſible, and each planted in a ſeparate ſmall pot, and plunged into a new hot-bed of tanners bark, where they muſt be ſhaded from the ſun till they have taken freſh root; after which they muſt be treated in the ſame manner as other tender exotics from the warm countries, admitting a large ſhare of free air to them when the weather is warm.

While the plants are young, they may be kept during the ſummer ſeaſon in a hot-bed of tanners bark under a frame; but in autumn they muſt be removed into the bark-ſtove, and plunged into the hot-bed of tan, where they ſhould conſtantly remain, and muſt be treated in the ſame manner as other tender plants; being careful not to give them too much water in winter, and in ſummer admitting a large ſhare of free air to them every day.

With this treatment the plants will thrive very well, but being plants of ſlow growth in their own country, cannot be expected to make great progreſs in Europe.

The third ſpecies is, with difficulty, propagated by layers, and is of very ſlow growth. The plants will live in a good green-houſe in winter, and in ſummer ſhould be placed abroad with other green-houſe plants.

GUAYAVA, or *Bay-Plum*, *Pſidium*, a genus of plants ranged by Linnæus among the *icoſandria monogynia*, and of which there are two ſpecies. 1. Guayava with angular branches, oval veined leaves, and a large fruit, or the common red Guayava. 2. Guayava with oblong oval leaves, which are veined, and a ſmall ſweet ſcented fruit, or the ſmall white Guayava.

The firſt ſpecies has a thick trunk which riſes to the height of twenty feet, and is covered with a ſmooth bark. The branches are angular; the leaves oval, having a ſtrong midrib, and many veins running toward the ſides, of a light green colour, ſtanding oppoſite upon very ſhort footſtalks. From the wings of the leaves the flowers come out upon footſtalks, about an inch and a half long. Theſe are ſucceeded by a large oval fruit, ſhaped like a pomegranate, having one cell filled with ſmall ſeeds; the fruit when ripe has an agreeable odour: and is eaten in the Weſt-Indies both by men and beaſts.

The leaves of the ſecond ſpecies are much like thoſe of the former, but the branches of the tree are not ſo angular; the flowers are much ſmaller, and the fruit is no larger than a middling Gooſeberry, but when ripe has a very ſtrong aromatic flavour. This flowers in June, and the fruit ripens in autumn.

There is a third ſort of this genus with a large white fruit, ſuppoſed to be a variety of the firſt ſpecies, ariſing from the ſame ſeeds, as it is often found intermixed with it. It differs from it in the colour of the midrib of the leaves, which in this are pale, but thoſe of the former are red. The flowers and fruit of this are larger, and the inſide of the fruit is white.

Culture of the GUAYAVA.

Theſe plants are propagated by ſeeds, which when brought over in the entire fruit, gathered full ripe, will ſucceed with greater certainty. Theſe ſhould be ſown in pots filled with kitchen-garden earth, and plunged into a hot-bed of tanners bark, and in ſix weeks, if the ſeeds are good, the plants will appear, when they muſt have free air admitted to them in proportion to the warmth to the ſeaſon. As ſoon as the plants have obtained ſtrength enough to be removed, they muſt each be tranſplanted into a ſmall pot, filled with the ſame ſort of earth, and plunged into a freſh hot-bed, ſhading them from the ſun till they have taken new root; after which they ſhould have a large ſhare of freſh air admitted to them every day in warm weather to prevent their drawing up weak, and in ſummer they muſt frequently be refreſhed with water.

In autumn they muſt be plunged into the tan-bed in the ſtove, where, during winter, they ſhould be kept in a moderate degree of warmth, and not have too much water, but in ſummer they will require plenty of wet, and in hot weather a great ſhare of air. With this management the plants will produce flowers and fruit the third year, and may be preſerved a long time.

GUELDER-ROSE, a ſpecies of *Viburnum*, ranged by Linnæus among the *pentandria trigynia*, and of which there are two ſpecies. 1. Guelder-Roſe with lobated leaves placed on glandulous footſtalks, or the common Guelder-Roſe. 2. American Guelder-Roſe with acute-pointed ſawed leaves, and white flowers.

The firſt ſpecies in its wild ſtate is a native of our own country, and almoſt every other part of Europe: the Dutch firſt brought it from their meadows into gardens, and gave it that round fulneſs of the bunch of flowers. From them it obtained the name of Guelder-Roſe, but is properly called Guelderland-Roſe.

The root ſpreads far, the ſtem is ſlender, the bark brown, and the wood white and brittle; the leaves are large and divided into three or more parts, nearly to the footſtalk which is glandulous. Theſe parts are called the lobes of a divided leaf; and hence the leaf itſelf is named lobated. The flowers are extremely beautiful, but their conſpicuous elegance is owing more to their diſpoſition than their ſingle form, for they are ſmall. In the re-wild ſtate a few large, white, diſtinct flowers edge the general umbel, and the reſt are ſmall, cluſtered together, and yellowiſh; opening later, and having little beauty: but of thoſe which have been raiſed in gardens, the flowers are of the large, diſtinct, white kind; and inſtead of edging a flat umbel, they are cluſtered into a perfect globular tuft. Each is placed in its proper cup, which is ſmall, dented in five places, and permanent. The body of the flower is formed of a ſingle petal, tubular a little way at the baſe; expanded thence in a campanulated form, and cut into five regular obtuſe ſegments, which naturally turn back at the end: in each ſtand five ſmall filaments with rounded buttons and under the receptacle is a roundiſh rudiment, from which, in the place of a ſtyle, riſes a gland of a pear-like ſhape, with three obtuſe heads.

The ſecond ſpecies is a native of Carolina, and ſome other parts of North America: this riſes with a ſhrubby ſtalk eight or ten feet high, ſending out many branches, which are covered with a ſmooth purple bark garniſhed with heart-ſhaped oval leaves, ending in acute points; they are deeply ſawed on their edges, having many ſtrong veins, and ſtand upon very long ſlender footſtalks oppoſite. The flowers are white, and the berries are red when ripe.

Culture of the GUELDER-ROSE.

In order to bring both to their full perfection, the gardener muſt chuſe a piece of ground near which there is water, and digging out the mould to ſome depth he muſt fill up the place with fine black meadow earth, mixed with a third part of pond-mud, and a little rotted cow-dung.

He muſt then chuſe ſome ſuckers from the root of a thriving tree, that has ſtood where there is moiſture, and conſequently bears tolerable tufts of flowers. Let him plant theſe ſuckers in the above compoſts where they will require no other care but covering the ground about their ſtems the firſt winter, and frequent gentle waterings the ſucceeding ſpring. The time for planting theſe ſuckers is in September: and they may be either planted out into a nurſery for three years, and then brought into the garden in their full perfection, or ſet at once in their place. The circumſtances of the garden muſt determine this; but the planting the ſuckers at once where they are to remain, is the ſecure way to have handſome ſhrubs. There is great advantage in the hardineſs of this ſhrub: it is able to bear any ſeverity of cold; the north winds never hurt it, and nothing is to be feared for it but drought and too much ſun.

Therefore, let the gardener ſelect for it ſuch parts of his ground as will ſcarce ſuit with any thing beſide: a damp bottom we have named already, and where there is ſuch a requiſite it cannot fail.

Some propagate it by layers; but this is a tedious method. They require to be laid deep, and to have frequent waterings. In a year from the laying they may be tranſplanted for uſe, and they will grow freely; but they are no way preferable to thoſe ſuckers the root furniſhes naturally, and which require only to be taken up and put into the ground. The beſt height for this ſhrub is about nine feet: it will grow more if permitted, but a ſkilful gardener will chuſe to give it a good full head at this height, and it will be covered at this ſeaſon with flowers.

GUILANDINA, or NICKAR-TREE, a genus of plants, of which there are five ſpecies. 1. Prickly Guilandina, with doubly winged leaves, whoſe lobes are oval, oppoſite, and entire, called Yellow Nickar. 2. Prickly Guilandina, with oval, ſmall leaves, placed oppoſite, and ſitting cloſe, called Grey Nickar. 3. Smooth Guilandina, with doubly winged leaves. 4. Smooth Guilandina, with winged leaves, whoſe under ſmall leaves are trifoliate, called Morunga. 5. Guilandina, with ſmooth branches, doubly winged leaves, but thoſe at the top and bottom ſingly winged, commonly called Canada Nickar-tree.

The firſt and ſecond ſpecies grow naturally in moſt of the iſlands in the Weſt-Indies, where they twine their ſtalks about any neighbouring ſupport, and riſe to the height of twelve or fourteen feet. The leaves of the firſt ſort are near a foot and a half long, compoſed of ſix or ſeven pair of pinnæ, or wings, each of which has as many pair of lobes, or ſmall leaves, ſet along the midrib; theſe are oval and entire. The foot-ſtalk, or principal mid-rib of the leaf, is armed with ſhort, crooked thorns, which are placed irregularly; the ſtalks are alſo cloſely armed with the like thorns, which are larger. The ſtalks at firſt grow erect, but as they advance, twine about any ſupport which is near them, being too weak to ſtand without it. The flowers are ſituated at the wings of the ſtalks, in long ſpikes; they are compoſed of five concave, yellow petals, which are equal; in the center is ſituated the oblong germen, ſurrounded by ten ſtamina. After the flower is paſt, the germen becomes a pod about three inches long, and two broad, cloſely armed with ſlender ſpines, opening with two valves, each incloſing two hard ſeeds, about the ſize of a ſmall hazel-nut, of a yellowiſh colour.

The ſecond ſort differs from the firſt, in having much ſmaller leaves, which are ſet cloſer together; and below each pair of lobes are placed two ſhort, ſtiff, crooked ſpines, which are placed oppoſite; the flowers are of a deeper yellow colour than thoſe of the firſt ſort, and the ſeeds are of an aſh colour.

The third ſpecies has an upright ſtem, of a large ſize, divided into many branches. The leaves are ſmooth, doubly-winged, and placed oppoſite; they are oval, but end in a point, and are of a light green colour.

The fourth ſort grows naturally in the iſland of Ceylon, and in ſeveral places on the Malabar coaſt. This, where it is a native, riſes to the height of twenty-five or thirty feet, with a ſtrong ſtem, covered with a ſmooth bark, which in the young branches is green, but on the older it is of an aſh colour. The root is knobbed and very thick, this, when young, is ſcraped and uſed by the inhabitants as Horſe-radiſh in Europe, having much the ſame hot taſte. The branches are decorated with winged leaves; thoſe which are ſituated at the baſe have but three leaves: but above, the leaves are branched out into ſeveral diviſions, which are again divided into ſmaller, which have five or ſix pair of oval lobes, terminated by an odd one: they are of a light green, and a little hoary on their under ſide. The flowers are produced in looſe bunches from the ſides of the branches, compoſed of an unequal number of petals, from five to ten; they have ten ſhort ſtamina ſurrounding the germen, which afterwards turn to a long taper pod, including ſeveral angular ſeeds, covered with a thin membrane; theſe have a flavour like the root.

The fifth ſort is a native of Canada, where it riſes with an erect ſtem to the height of thirty feet or more, dividing into many branches, which are covered with a bluiſh, aſh-coloured bark, very ſmooth. The leaves are large, winged, of an oval ſhape, very ſmooth, and entire, but are ranged alternate on the mid-rib; theſe fall off in autumn, and new ones come out late in the ſpring.

Culture of the GUILANDINA.

The four firſt ſpecies, being natives of warm countries, will not live through the winter in our climate, unleſs they are plunged into the tan-bed in a warm ſtove. They are propagated by ſeeds; but thoſe of the two firſt ſorts are ſo hard, that unleſs they are ſoaked two or three days in water, before they are put into the ground, or placed under the pots in the tan-bed, to ſoften their covers, they will remain years in the ground without vegetating.

When the plants come up they will be fit to remove in a ſhort time, when they ſhould be tranſplanted each into a ſeparate ſmall pot, and plunged into a moderate hot-bed of tanners-bark, ſhading them till they have taken freſh root, after which they muſt be treated in the ſame manner as other tender exotics, giving them a large ſhare of air in warm weather, and but little water. When the plants are grown too high to remain any longer in the frames, they muſt be removed into the bark-ſtove, and plunged into the hot-bed, where they will make great progreſs, provided they have not too much water, eſpecially during the winter ſeaſon; for much moiſture in cold weather would injure the plants greatly.

The fifth ſpecies is propagated by cutting off ſome of the roots and planting them in pots, which ſhould be plunged into a gentle hot-bed, which will cauſe them to ſhoot upward, ſo may be taken from the old root and multiplied. It requires a light ſoil, not too moiſt, and will live abroad in the open air, as they are never hurt by froſt.

GUNDELIA, a genus of plants, for which there is no Engliſh name.

There is but one ſpecies of this genus, of which there are two varieties. 1. Eaſtern Gundelia, with prickly bear's-breech leaves, deep purple flowers, and a head covered with a down, like a cobweb. 2. Eaſtern Gundelia, with a prickly bear's-breech leaf, and a ſmooth head.

This plant is a native of ſeveral places in the Levant. The ſtalks ſeldom riſe more than two feet high. The under leaves are long, narrow, and ſawed on their edges, their teeth ending in a ſpine; the other leaves are broader, and irregularly ſlaſhed to the mid-rib, and armed at the points with ſharp prickles. The ſtalks divide upward into ſeveral branches, and each is terminated by a conical head of flowers, reſembling thoſe of Fuller's Thiſtle, being ſurrounded at the baſe by a circle of long, narrow, prickly leaves.

Culture of the GUNDELIA.

Theſe plants are propagated by ſeed, which ſhould be ſown the beginning of March in a warm border of freſh earth, in the place where the plants are deſigned to remain; for theſe plants having top-roots, which run very deep in the ground, will not bear tranſplanting.

When the plants come up, they muſt be carefully cleared from weeds; and as they grow large, they ſhould be thinned, leaving the plants, which are deſigned to remain, about two feet aſunder, that they may have room to ſpread; after this they only require to be kept clean from weeds. In about two years the plants will produce their flowers, which make a fine appearance among other hardy plants in the pleaſure-garden. The roots will continue ſeveral years in a dry ſoil.

H.

HARDBEAM. See the article HORNBEAM.

HARE-BELL, a ſpecies of Hyacinth, which grows naturally in woods, and near hedges in ſeveral parts of England, ſo is ſeldom admitted into gardens.

HARE'S-EAR, *Bupleurum*, a genus of plants, ranged by Linnæus among the *pentandria digynia*, and of which he enumerates thirteen ſpecies, but of theſe, two only are cultivated, except in botanic gardens for the ſake of variety, viz: 1. Shrubby Hare's-Ear, with oblong, oval, entire leaves, commonly called Shrubby Ethiopian Hartwort. 2. Shrubby Hare's-Ear, the ſpring leaves of which are decompounded, plain, and cut, and the ſummer leaves thread-ſhaped, angular, and trifid.

The firſt ſpecies has a woody ſtem, which ſends out many branches on every ſide, ſo as to form a large head or buſh. The leaves are ſtiff, ſmooth, oblong, oval, and of a ſea-green colour. The ends of the branches are terminated by umbels of yellow flowers. This ſhrub riſes to the height of five or ſix feet, forming a large regular buſh, which makes an elegant appearance; and the leaves continuing green throughout the year, renders it very valuable.

The ſecond ſpecies is a native of the Cape of Good Hope; it riſes with a ſhrubby ſtalk to the ſame height as the former, ſending out ſome ſide branches, which in the ſpring have their lower parts decorated with leaves compoſed of many ſmall plain lobes, which are finely cut, and of a fine ſea-green colour; theſe leaves ſoon fall off, and the upper part of the branches are cloſely covered with long ruſh-like leaves, having four angles, which come out in cluſters from each joint. The flowers grow in ſpreading umbels at the extremity of the branches, which are ſmall and of an herbaceous colour, and are ſucceeded by oblong channelled ſeeds.

Culture of the HARE'S-EAR.

The firſt ſpecies is propagated by cuttings, which ſhould be planted in pots, and in winter ſheltered under a hot-bed frame. In the ſpring the cuttings will put out roots, but they will not be fit to tranſplant till the autumn following; therefore the pots ſhould be placed in a ſhady ſituation in ſummer.

The young plants may be planted in a nurſery bed at two feet diſtance, for a year or two, till they get ſtrength, and then tranſplanted where they are to remain. The moſt proper place for them is among ever-green ſhrubs of the ſame growth, where they will make an agreeable variety.

The ſecond ſpecies is alſo propagated by cuttings, which in April muſt be planted in pots, and plunged into a moderate hot-bed, where they will ſoon take root, after which they ſhould by degrees, be inured to the open air; and after having obtained ſtrength, they may be planted each into a ſeparate pot, obſerving to place them in the ſhade till they have taken freſh root, when they may be placed with other exotic plants in a ſheltered ſituation, where they may remain till the autumn, when they muſt be removed into the green-houſe, and placed with ſuch hardy plants as require a large ſhare of air in mild weather, and only require protection from the froſt.

HARTWORT, *Tordylium*, a genus of plants, ranged by Linnæus among the *pentandria digynia*, and of which there are ſeven ſpecies. 1. Hartwort, with the involucra longer than the umbels. 2. Hartwort, with the partial involucra of the length of the petals, and with oval, jagged lobes. 3. Hartwort, with the umbels growing at a diſtance, winged leaves, with the lobes roundiſh and jagged. 4. Hartwort, with the rays of the umbel cloſed together, and the lobes of the leaves ſpear-ſhaped and cut like ſaws. 5. Hartwort, with almoſt naked umbels cloſed together, winged leaves, and the lobes of the leaves ſpear-ſhaped, and cut like ſaws. 6. Hartwort, with cloſed umbels, and oval, ſpear-ſhaped, wing-pointed lobes; or Hedge Parſley. 7. Hartwort, with ſingle ſeſſile umbels, and the outer ſides of the ſeeds prickly; or Knotted Parſley.

All theſe ſpecies are natives of Italy, and other parts of Europe.

Culture of the HARTWORT.

They are all propagated by ſeeds, which ſhould be ſown in autumn, ſoon after they are ripe, when the plants will ſoon appear, and are very hardy, ſo that they require no farther care, but to keep them clean from weeds; and where they come up too cloſe together, they ſhould be thinned, ſo as to leave them ſix inches aſunder. In June following the plants will flower, and their ſeeds will ripen in autumn, which, if permitted to ſcatter on the ground, will produce a ſupply of plants without any trouble.

Theſe plants will grow on any ſoil or ſituation, ſo may be put into any obſcure part of the garden.

Shrubby Ethiopian HARTWORT, a ſpecies of Hare's-ear. See the article HARE'S-EAR.

HATCHET-VETCH. See the article CORONILLA.

HAWKWEED, *Hieracium*, a genus of plants, ranged by Linnæus among the *ſyngeneſia polygamia æqualis*, and of which there are twenty-ſix ſpecies: few of them are admitted into gardens; among the moſt beautiful of thoſe which are allowed a place, there is the Orange Hawkweed, ſometimes called Golden Mouſe-ear, and by ſome Grim the Collier.

The root is oblong, purpliſh at the head, white below, and hung with many thick fibres; beſides theſe, it ſends out every way a kind of tendrils, which take root again at their ends, and ſpread and propagate it abundantly. The leaves are numerous and large: their colour is a deep, blackiſh green, and they are covered with firm and ſtiff whitiſh hairs: they are oblong, undivided, and of a moderate breadth. The ſtalk is ſimple, upright, round, and almoſt naked: a ſingle, ſmall leaf, ſometimes adheres to it, rarely more. Its colour is a paler green than that of the leaves, and it is covered with the ſame kind of hairyneſs: it does not divide into branches, but at the top ſpreads out into a tufted head of flowers. The bottom of the hairs, which cover the ſtalk, are black, and they appear at a diſtance as ſo many black ſpots upon its ſurface; the height of the ſtalks is a foot and a half, and the crown of flowers at its ſummit is often five inches in diameter; but where there are fewer of them they are finer. Each flower is ſurrounded by a rough, blackiſh cup, and is itſelf rounded, radiated, and of a very fine orange colour. One flower always ſhews itſelf upon the plant, and paſſes through its ſtate of perfection, before the others open; this is the moſt perfect and moſt beautiful: from this the ſeeds ſhould be ſaved. The cup is thick, and compoſed of many narrow and unequal ſcales, placed lengthways, and incumbent; in this ſtands the general flower, which is compoſed of many floſcules, laid in a regular manner, one over another, and all of the ſame ſtructure. Each floſcule is formed of a ſingle petal, and is flat, narrow, and when perfect, cut in five places at the end. To each of theſe floſcules belong the male and female parts of impregnation; the male parts are five very ſhort filaments, with oblong and tubulated buttons, growing together in form of a cylinder; the ſtyle is ſimple, of the length of the filaments, and has a double head, the two parts of which are equal; this riſes from the rudiment of the ſeed, which, when it ripens, is winged with down.

Culture of the Orange HAWKWEED.

It may be propagated by ſeeds ſown in March, upon a border, with an aſpect to the eaſt. The plants, when come up, muſt be kept clean from weeds; and when they are ſtrong enough to be removed, which they will be about the beginning of June, let them be tranſplanted into a ſhady border of undunged ground, at the diſtance of ſix inches aſunder. If the weather ſhould prove dry, let them be watered till they have taken new root; after which, if they are kept clean from weeds, they will require no other culture. In the autumn they ſhould be tranſplanted where they are deſigned to remain; the following ſummer they will flower, and produce ripe ſeeds; and the roots will continue ſome years, if they are not planted in a rich or moiſt ſoil; they may be alſo propagated by off-ſets, or parting of the roots in autumn. After this, they will increaſe faſt by the root; but as the propagation by ſeed is ſo eaſy, it is beſt to do it every year, for the flowers never are ſo perfect as on the firſt blowing.

The ſame culture is proper for every ſpecies of this genus, which is admitted into gardens.

Baſtard HAWKWEED, *Creſpis*, a genus of plants, ranged by Linnæus among the *ſyngeneſia polygamia æqualis*, and of which there are four ſpecies. 1. Baſtard Hawkweed, with a Dandelion leaf, and a ſoft red flower. 2. Baſtard Hawkweed, with hairy, wild ſuccory leaves, ſmelling like Caſtor. 3. Baſtard Hawkweed, with flowers black in the middle; or Spaniſh Hawkweed. 4. Baſtard Hawkweed, with a Viper's-graſs leaf; or Alpine Hawkweed.

There are ſeveral other ſpecies of this genus, ſome of which grow naturally in England, and others are weeds in different parts of Europe.

The firſt ſpecies is a native of Apulia ; it has many ſpear-ſhaped leaves, which ſpread on the ground, and are deeply jagged on their ſides ; between theſe riſe the branching ſtalks, which grow a foot and a half high. The leaves are oblong, deeply indented on their edges, and embracing the ſtalks with their baſe. Theſe ſtalks are each terminated by one large radiated flower, of a ſoft red colour, compoſed of many half florets, which are ſucceeded by oblong ſeeds, crowned with a feathery down. It is an annual plant.

The ſecond ſpecies grows naturally in the ſouth of France, and in Italy. This is a biennial plant, and ſometimes, when it is in poor ground, it will continue longer. It has a thick top root, which ſtrikes deep into the ground, ſending out many ſmall fibres. The lower leaves are from four to five inches long, and about a quarter of an inch broad, having ſeveral deep jaggs on their edges. From the root riſe four or five ſtalks, which grow about ten inches high ; the leaves on the lower part of theſe are of the ſame form with thoſe at the root, but are ſmaller, and more jagged. The upper part of the ſtalks are naked, and terminated by one flower, of a beautiful gold colour, compoſed of many florets, which are included in a ſingle empalement. The flowers are ſucceeded by oblong, narrow ſeeds, crowned with a feathery down.

The third ſpecies is a native of Spain ; this is an annual plant : it puts out leaves near the root, which are nine inches long, and almoſt two broad in the middle ; they are of a light green, and a little jagged on their edges. The ſtalks riſe a foot and a half high ; the leaves are of the ſame form as thoſe at the bottom, but are ſmaller. The flowers are produced at the ends of the branches ; theſe have a double empalement, compoſed of many long, and very narrow leaves ; the outer ſeries are reflexed downward, and turn upward again, and are inflexed at their extremities ; the flowers are compoſed of many florets, which ſpread regularly in form of rays, ſituated over each other like ſcales of fiſh ; the center is black, which gives them an elegant appearance in a garden.

The fourth ſpecies grows naturally on the Alps ; this is alſo an annual plant, which ſends out many leaves near the root five inches long, and almoſt two broad at their baſe ; the upper parts of theſe are ſlightly indented, but their lower are entire. The ſtalks are ſtrong, upright, riſing two feet high, and are terminated by pale white flowers, incloſed in a ſtrong hairy empalement.

Culture of the Baſtard HAWKWEED.

All theſe ſpecies are propagated by ſeeds, which ſhould be ſown in the ſpring, on the borders of the flower-garden, where they are deſigned to remain, ſo that if ſix or eight ſeeds are ſown in each patch, when the plants come up, they may be reduced to three or four ; and if theſe are kept clean from weeds, they will require no other culture.

If the ſeeds are ſown in autumn, or permitted to ſcatter, the plants will come up, and live through the winter without ſhelter, and will flower early in the ſpring.

HAUTBOY, a ſpecies of the Strawberry. See the article STRAWBERRY.

HAWTHORN, a ſpecies of the Medlar. See MEDLAR.

HAZEL, or NUT-TREE, *Corybus*, a genus of plants, ranged by Linnæus among the *monoecia polyandria*, and of which there are three ſpecies. 1. Wild Hazel-Nut. 2. The Filbert. 3. Byzantine Nut.

The firſt of theſe ſpecies is common in the woods in moſt parts of England, and therefore ſeldom planted in gardens.

The ſecond ſpecies is by ſome ſuppoſed to be only a ſeminal variety from the firſt ; of this there are the red and white Filberts, both which are ſo well known, that they need no deſcription.

The third ſpecies grows naturally near Conſtantinople. the common Hazel, but are more than twice their ſize ; The nuts of this are large, roundiſh, and in ſhape like the cups in which the nuts grow are very large, ſo as nearly to cover the nut, and is deeply cut at the brim.

Culture of the HAZEL, *or* NUT-TREE.

All theſe ſpecies may be propagated by ſuckers, but the beſt method is by laying down their branches, which, in one years time will take ſufficient root for tranſplanting ; and theſe will be much handſomer, and better rooted plants than thoſe raiſed from ſuckers, and will greatly outgrow them, eſpecially while young.

They may alſo be propagated by ſowing their nuts in February, which in order to preſerve them good, ſhould be kept in ſand in a moiſt cellar, where they are ſecure from vermin ; but great care ſhould be taken not to exclude the external air from them, which would occaſion their growing mouldy.

Witch HAZEL, *Hamamelis*, a genus of plants, of which there is but one ſpecies.

This plant is a native of North America. It riſes with a woody ſtem from two to three feet high, ſending out many ſlender branches. The leaves are oval, indented on their edges, and bear a great reſemblance to thoſe of the Hazel ; theſe fall away in the autumn, and when the plants are deſtitute of leaves, the flowers come out in cluſters from the joints of the branches. Theſe ſometimes appear the latter end of October, and often not till December. They are not ſucceeded by ſeeds in this country.

Culture of the Witch HAZEL.

It is propagated by laying down the young branches in autumn, which will take root in one year, and may then be taken from the old plants, and placed where they are to ſtand.

The ſeeds of this plant always remain a year in the ground, they ſhould therefore be ſown in pots, which muſt be plunged into the ground in a ſhady part of the garden, where they may continue all the ſummer, and will require no other care but to keep the pots clean from weeds, and to water them at times, in very dry weather. In autumn the pots may be removed to a warmer ſituation, and plunged into the ground, under a hedge : and if the winter ſhould prove very ſevere, they muſt have ſome light covering thrown over them, which will ſecure the ſeeds from being deſtroyed.

In the ſpring the plants will come up, and as the ſeaſon advances, the pots may be removed where they may have the morning ſun till eleven o'clock. In the autumn they ſhould be tranſplanted either into ſmall pots, or into a nurſery bed, where in one, or at moſt two year's time, they will be ſtrong enough to plant where they are deſigned to remain. They delight in a moiſt ſoil, and a ſhady ſituation.

HEART'S-EASE, or PANSIES, a ſpecies of Violet, which grows naturally in ſome of the northern counties of England, but by culture, has been brought to great perfection, and ſeveral varieties obtained, which differ greatly in the ſize and colour of their flowers.

Some of theſe varieties have very large beautiful flowers, which have an agreeable odour, and others have ſmall flowers, without ſcent.

Some of them have the two upper petals of a deep yellow, with a purple ſpot in each, the two middle of a paler yellow, with a deep yellow ſpot, and the lower petal of a dark purple ; in others the petals are white, with yellow and purple ſpots ; in ſome the yellow is the moſt prevailing colour, and in others the purple.

Culture of the HEART'S-EASE.

Theſe plants, if permitted, will ſcatter their ſeeds ſoon after the flowers are paſt, and from theſe ſelf-ſown ſeeds the plants, which come up in autumn, will flower very early in the ſpring, and will be ſucceeded by the ſpring plants ; ſo that where they are encouraged in a garden, there will be a conſtant ſucceſſion of their flowers the greateſt part of the year; for in mild ſeaſons, they will flower all the winter, and, in ſhady ſituations, moſt part of the ſummer, which renders them worthy a place in every good garden : but they muſt be prevented ſpreading too far, leſt they become troubleſome weeds ; for their ſeeds, when ripe, are caſt out of their covers with great elaſticity to a conſiderable diſtance, and the plants will ſoon ſpread over a large ſpace of ground, if they are permitted to ſtand.

HEBENSTRETIA, a genus of plants ranged by Linnæus among the *didynamia angioſpermia*, and of which there are two ſpecies. 1. Hebenſtretia with dentated leaves. 2. Hebenſtretia with undivided leaves.

Both the ſpecies are natives of Africa. The root of the firſt is white and fibrous. The ſtalks are numerous, and grow irregularly. Some lean upon the ground, and others are ſpread without order over the ſurface; but thoſe in the midſt uſually riſe tolerably erect, and are a foot and a half in height. They are round, tender, purple at the bottom, green toward the top, and not much branched. The leaves are numerous, and placed irregularly: they have no footſtalks, and their colour is a lively green, often tinged with purple. Thoſe from the root are deeply divided, thoſe on the lower part of the ſtalk ſharply dentated, and ſuch as grow toward the top not at all ſerrated. The flowers are ſmall, but their diſpoſition renders them conſpicuous. They ſtand in long ſpikes at the tops of all the branches. Their colour is a pure and perfect white, but in the centre there is a ſpot of a fine glowing red. Each flower is placed in a cup formed of two ſegments, divided in the manner of lips, the lower of which is irregularly ſhaped, and much longer than the other. The flower itſelf is formed of a ſingle petal, tubular at the baſe, and divided at the extremity in four places: it runs up in form of a ſingle lip, anſwering to the under lip of the cup. From the ſides of the lip, toward the lower part, ſpring four filaments, crowned with their buttons; they are all ſhort, but two of them are ſomewhat longer than the others; and from the baſe riſes a ſingle ſtile.

The root of the ſecond ſpecies is brown, long, and ſpreading. The ſtem is woody but does not exceed fifteen inches in height; it is divided into many branches. The bark is brown upon the lower part, but the young ſhoots are green. The leaves ſtand irregularly, and in great numbers upon the branches: they grow upright, and form a kind of abſolute covering for them of conſiderable thickneſs, they are oblong, very narrow, and adhere to the branches without footſtalks. Their colour is a freſh and fine green. The flowers grow in long regular ſpikes at the tops of all the branches, and are ſmall and white. Each has its cup, ſmall but particular in ſtructure: it is formed of one piece divided into two lips, and tubular at the baſe. The upper lip is ſmall, narrow, and erect; the under longer and bent down. One petal forms the flower: it is tubular at the baſe and at the top cut into four parts; theſe make a ſort of upper lip, the lower lip of the cup ſerving in place of a lower one. The filaments are four, and they riſe from the two ſides of the lower part of the flower; two of theſe are ſhorter than the others. The buttons are oblong and lateral. The ſtyle is ſingle, and has a fine ſmall head; and there follows an oblong ſeed-veſſel, containing two ſeeds.

Culture of the HEBENSTRETIA.

The firſt ſpecies is propagated by ſeeds either imported from Africa or ripened here. Before theſe are ſown, the following compoſt ſhould be prepared. Freſh mould from a hilly paſture, with a mixture of wood-pile earth, and clean ſand, of each one fourth the quantity of the mould; let this be well mixed and laid in a heap till the plants are fit for potting.

Early in the ſpring ſow the ſeeds on a hot-bed, when the plants are come up, tranſplant them on a ſecond hot-bed; when they have got a little ſtrength they muſt be planted into pots filled with the above compoſt, and by degrees inured to the air. When they have acquired a ſufficient growth they may be ſet out among the green-houſe plants, and removed into ſhelter in autumn.

When the plants have been thus raiſed, they may be farther propagated by parting of the roots; but this method is much inferior to the former, for it does not afford either ſo large, or ſo handſome plants as thoſe raiſed from ſeeds, and another great diſadvantage attending it is, that for ſeveral ſeaſons they blow weakly and poorly. Bad management will alſo loſe the ſpot in the flower.

The ſecond ſpecies is alſo raiſed from ſeeds, which in ſpring ſhould be ſown in pots, filled with the compoſt directed for the firſt ſort, and plunged into a bark-bed. When the plants are large enough to be taken up, each muſt be planted in a pot of the ſame mould, and again ſet up to the rim in the ſame bed till well rooted: then, by degrees, they muſt be inured to the air, by admitting it in the middle of the day; and when they can bear it, they muſt be ſet out among the green-houſe plants, and houſed with them in winter.

The ſecond year they will flower; and if all the branches are permitted to grow as nature throws them out, the plant will form a very pretty buſh, and the top covered with flowers. Theſe have a ſingularity about them, which never fails to attract the eye; and gives a variety beyond moſt others.

This ſpecies may likewiſe be propagated by cuttings, which ſhould be ſhoots of the ſame year. The proper time for planting them is in July, in a bed of the ſame compoſt. As ſoon as they are planted, give them a gentle watering, and cloſe the earth well about them, this will ſoon give them a tendency to rooting, and with the advantage of a ſhelter of canvas drawn over hoops, they will be ſo well rooted in ſeven weeks, that they may be taken up and planted in ſeparate pots. Theſe muſt be ſet under the ſame ſhelter till they are well eſtabliſhed; and then they are to be placed out among the green-houſe plants.

HEDGES, are either planted to make fences round incloſures, or to divide the ſeveral parts of a garden.

When they are deſigned as outward fences, they are planted either with Haw-thorn, Crabs or Black-thorn; but thoſe hedges which are planted in gardens, either to ſurround wilderneſs-quarters, or to ſcreen the other parts of a garden from ſight, are planted according to the fancy of the owner, ſome preferring evergreens, in which caſe the Holly is beſt; next the Yew, then the Laurel, Lauruſtinus, Phillyria, &c. others prefer the Beech, the Hornbeam, and the Elm. Before planting, it is proper to conſider the nature of the land, and what ſort of plants will thrive beſt in it; and alſo, what is the ſoil from whence the plants are to be taken. As for the ſize, the ſets ought to be about the bigneſs of one's little finger, and cut within about four or five inches of the ground; they ought to be freſh taken up, ſtraight, ſmooth, and well rooted.

Thoſe plants that are raiſed in the nurſery are to be preferred. In planting outſide hedges, the turf is to be laid with the graſs-ſide downwards, on that ſide of the ditch the bank is deſigned to be made, and ſome of the beſt mould ſhould be laid upon it to bed the quick, which is to be ſet upon it a foot aſunder.

When the firſt row of quick is ſet, it muſt be covered with mould, and when the bank is a foot high, you may lay another row of ſets againſt the ſpaces of the former, and cover them as you did the others: the bank is then to be topped with the bottom of the ditch, and dry or dead hedge laid, to ſhade and defend the under plantation.

Stakes ſhould then be driven into the looſe earth, ſo low as to reach the firm ground; theſe are to be placed at about two feet and a half diſtance, and in order to render the hedge yet ſtronger, you may edder it, that is bind the top of the ſtakes with ſmall long poles, and when the edging is finiſhed, drive the ſtakes anew. The quick muſt be kept conſtantly weeded and ſecured from being cropped by cattle; and in February it will be proper to cut it within an inch of the ground, which will cauſe it to ſtrike root afreſh, and help it much in the growth.

When an hedge is about eight or nine years growth, it will be proper to plaſh it, for the method of doing which ſee the article PLASHING.

The Crab is frequently planted for hedges and if the plants are raiſed from the kernels of the ſmall wild Crabs, they are much to be preferred to thoſe raiſed from the kernels of all ſorts of Apples without diſtinction; becauſe the plants of the true ſmall Crab never ſhoot ſo ſtrong as thoſe of the Apples, and may therefore be better kept within the proper compaſs of an hedge. The Black-thorn or Sloe is frequently planted for hedges; and the beſt method of doing it, is to raiſe the plants from the ſtones of the fruit, which ſhould be ſown about the middle of January, if the weather will permit, in the place where the hedge is intended; but when they are kept longer out of the ground it will be proper to mix them with ſand, and keep them in a cool place. The ſame fence will do for it when ſown, as when it is planted for hedges; but where it is expoſed, there will be great difficulty in preventing its being deſtroyed, otherwiſe it is by far the moſt beautiful plant, and being an evergreen will afford much better ſhelter for cattle in winter, than any other ſort of hedge. The beſt way of raiſing theſe hedges, is to ſow the ſtones in the place where the hedge is intended, and where this can be conveniently done, the plants will make a much greater progreſs than thoſe that are tranſplanted; but theſe berries ſhould be buried in the ground ſeveral months before they are ſown.

The method to do this is to gather the berries about Chriſtmas, when they are uſually ripe, and put them into large flower-pots, mixing ſome ſand with them, then dig holes in the ground into which the pots muſt be ſunk, covering them over with earth about ten inches thick. In this place they muſt remain till the following October, when they ſhould be taken up, and ſown in the place where the hedge is intended to be made. The ground ſhould be well trenched, and cleared from the roots of all bad weeds, buſhes, trees, &c. Then two drills ſhould be made, at about a foot diſtance from each other, and about two inches deep, into which the ſeeds ſhould be ſcattered pretty cloſe, leſt ſome ſhould fail. When the plants grow up, they muſt be carefully weeded, and if they are deſigned to be kept very neat, they ſhould be cut twice a year, that is in May and in Auguſt; but if they are only deſigned for fences, they need only be ſheered in July.

The fences for theſe hedges, while young, ſhould admit as much free air as poſſible: the beſt ſort are thoſe made with poſts and rails, or with ropes drawn through holes made in the poſts; and if the ropes are painted over with a compoſition of pitch, brown Spaniſh colour and oil, well mixed, they will laſt ſeveral years.

Hedges for ornaments in gardens are ſometimes planted with ever-greens, in which caſe the Holly is preferable to any other. Next to this moſt people prefer the Yew, but the deadly colour of its leaves renders theſe hedges leſs agreeable. The Laurel is one of the moſt beautiful ever-greens, but the ſhoots are ſo luxuriant that it is difficult to keep them in any tolerable ſhape, and as the leaves are large, to prevent the diſagreeable appearance given them by their being cut through with the ſheers, it will be the beſt way to prune them with a knife cutting the ſhoots juſt down to a leaf. The Lauruſtinus is a very fine plant for this purpoſe, but the ſame objection may be made to this as to the Laurel; this, therefore, ought only to be pruned with a knife in April, when the flowers are going off; but the new ſhoots of the ſame ſpring muſt by no means be ſhortened.

The ſmall-leaved and rough-leaved Lauruſtinus are the beſt plants for this purpoſe. The true Phillyria is the next beſt plant for hedges, which may be led up to the height of ten or twelve feet, and if they are kept narrow at the top, that there may not be too much width for the ſnow to lodge upon them, they will be cloſe and thick, and make a fine appearance.

The Ilex or evergreen Oak, is alſo planted for hedges, and is a fit plant for thoſe deſigned to grow very tall.

The diciduous plants uſually planted to form hedges in gardens, are the Horn-beam, which may be kept neat with leſs trouble than moſt other plants. The Beech, which has the ſame good qualities as the Hornbeam; but the gradual falling of its leaves in winter cauſe a continual litter. The ſmall-leaved Engliſh Elm is a proper tree for tall hedges, but theſe ſhould not be planted cloſer than eight or ten feet.

The Lime-tree has alſo been recommended for the ſame purpoſe; but after they have ſtood ſome years they grow very thin at bottom, and their leaves frequently turn of a black diſagreeable colour.

Many of the flowering ſhrubs have alſo been planted in hedges, ſuch as Roſes, Honeyſuckles, Sweetbriar, &c. but theſe are difficult to train, and if they are cut to bring them within compaſs, their flowers which are their greateſt beauty, will be entirely deſtroyed.

HEDGE-HOG, a ſpecies of Snail Trefoil. See the article Snail Trefoil.

HEDGE *Hyſſop*, See *Hedge* Hyssop.

HELIOCARPUS, a genus of plants for which there is no Engliſh name, and only one ſpecies.

This plant riſes with a thick, ſoft, woody ſtalk, from fifteen to eighteen feet high; and toward the top it ſends out ſeveral lateral branches. The leaves are heart-ſhaped, full of veins, ſawed on their edges, and ending in acute points. The flowers are produced at the end of the ſhoots in branching cluſters; their colour is a yellowiſh green. They are ſucceeded by flat compreſſed ſeed-veſſels of an oval ſhape, whoſe borders are cloſely ſet with threads, repreſenting rays, of a browniſh colour when ripe. Theſe capſules are divided into two cells by an intermediate partition, in each of theſe is lodged a ſingle roundiſh ſeed ending in a point.

Culture of the Heliocarpus.

This plant is propagated by ſeeds, which muſt be ſown upon a hot-bed in the ſpring; and when the plants are fit to remove they ſhould be each planted in a ſeparate ſmall pot, and plunged into a hot-bed, treating them in the ſame way as other tender plants.

While the plants are young, they require to be plunged, but after they have acquired ſtrength, they will thrive in the dry ſtove: in winter they ſhould have but little water, and be kept warm; but in ſummer they ſhould have plenty of freſh air in fine weather, and muſt be frequently refreſhed with water. With this management the plants will flower the third year, and produce good ſeeds; and with proper care may be preſerved ſeveral years.

HELIOTROPE, *Turnſole*, a genus of plants ranged by Linnæus among the *pentanaria monogynia*, and of which there are five ſpecies. 1. Heliotrope with rough, oval, heart-ſhaped, pointed leaves, and with ſingle ſpikes and divided fruit, or Indian Heliotrope. 2. Narrow-leaved Heliotrope with conjugate ſpikes, and ſmooth veinleſs leaves, or white Indian Heliotrope. 3. Heliotrope with oval, intire, woolly, rough leaves and conjugated ſpikes. 4. Heliotrope with oval, intire, woolly, plaited leaves, and ſingle ſpikes. 5. Heliotrope with narrow, ſmooth leaves, without veins, and lateral ſparſe flowers.

The firſt and ſecond ſpecies are the moſt beautiful; the culture of theſe is proper for the third ſort; and as to the fourth and fifth, being plants of no beauty, they are ſeldom admitted into any other than botanic gardens.

Indian HELIOTROPE. This is an erect, robuſt, and rugged plant. The root is long, white, woody, ſlender, acrid in taſte, and hung about with many fibres. The ſtalk is four feet high, ridged, hairy, with thickſet briſtles, of a greeniſh white toward the bottom, but from the middle upwards ſtained with a florid crimſon. The leaves are large, ſtanding irregularly, and have long footſtalks, hollowed and winged; it is broadeſt at the baſe, where it has a heart-like indenting for the ſtalk, thence it grows ſmaller to the extremity, where it is pointed; the edge is regularly waved and ſinuated, and the whole ſurface of the leaf is curdled up, and rough. Naturally the ribs and edges of thoſe leaves which hang upon the upper part of the ſtalk are purple, the reſt of a duſky green; but often when the plant is expoſed to the full ſun, the purple ſpreads itſelf over the whole leaf and its footſtalk; and the plant, even before it flowers, has a rich glowing aſpect.

The flowers are not very large, but from their manner of growth very conſpicuous. They are diſpoſed in double ſeries along one ſide of long ſlender footſtalks, which at their ends curl in a ſpiral line, and have been ſuppoſed to reſemble a ſcorpion's tail. Each flower is ſupported on a very ſhort footſtalk upon the common branch, but they ſtand ſo thick this is ſcarce ſeen.

When the plant is properly encouraged, the flowers are of a very delicate purple, much upon the blue; and as the ſoil and culture ſuit the plant more or leſs, they will be more upon the red caſt or more upon the blue; but when they have this true blueiſh purple, they are in their greateſt perfection.

The cup is formed of a ſingle piece, divided at the edge into five ſegments; and the body of the flower is formed of a ſingle petal; this is tubular at the baſe, and divided at the rim into five irregular, unequal and obtuſe ſegments. The opening to the tube is cloſed by five ſmall ſcales, which converge at the point, and form a kind of ſtar. In this part of the flower are placed the filaments: they are five, very ſmall, and topped with little buttons. The ſtyle is ſingle, it riſes in the midſt from a four-parted rudiment, and when the flower is fallen, four ſeeds ripen in the cup naked.

Culture of this Heliotrope.

This plant is an annual, and propagated by ſeeds, which ſhould be ſown in pots, filled with the following compoſt.

Waſh ſome coarſe pit-ſand till the water runs from it without colour, ſet it over the fire in an iron pot, and let it be well heated: when it is ſufficiently ſo, it will acquire a reddiſh hue. Mix a buſhel of this with five pecks of marle, and add one peck of black meadow earth: ſprinkle in a little ſoot, and a handful of ſalt, and let it lie in a heap for ſome time, expoſed to the weather.

In February fill ſome pots with this, and ſcatter upon it a little very rich mould, about a quarter of an inch thick; upon this ſtrew the ſeeds, and ſift over them a little of the compoſt: ſprinkle the ſurface with water, and ſet the pots up to the rim in a bark-bed.

When the young plants come up, give them a little water, and as ſoon as they have ſtrength for removing, tranſplant them each into a ſeparate pot of the compoſt; let theſe be pots of a middling ſize, for the plants are not to be removed any more. Settle the earth to their roots by a gentle watering, with water that has ſtood in the bark-bed or ſtove, and then ſet in the pots again up to the rim. Shade the bed with mats till they are well rooted, and then by degrees inure them to the air. In the beginning of June they may be finally ſet out, and for this purpoſe a place ſhould be choſen open to the full ſun.

Hitherto the plants will be green, or but little tinged; but from the time they are expoſed to the full ſun, they will begin to change their colour. the tenderer leaves will be blotched and ſpotted with crimſon, the others of a paler red, extremely ſingular and pleaſing. They will flower here, and ſeeds muſt be carefully ſaved.

The plant is ſo ſingular that it is worth preſerving through the winter; and this is to be done by preventing its flowering, and defending it from cold. If one or two of them be tranſplanted two or three times, during the beginning of the ſummer, and the heads cut off when the buds of the ſtalks for flowering appear, the plants being removed at the approach of winter into the ſtove, will live throughout that ſeaſon, and flower early in the ſpring.

White Indian HELIOTROPE. The root of this plant is compoſed of numerous white fibres, connected to a ſmall head. The ſtalk is round, ſmooth, of a greyiſh green, and ten inches high. The leaves ſtand in pairs; they are oblong, narrow, undivided at the edges, obtuſe, ſmooth, fleſhy, and of a bleuiſh green.

The flowers terminate the ſtalk in a double ſpike, turning down and curling back each way, and numerous others riſe from the boſoms of the leaves; they are ſmall and white, and at evening have a very fragrant ſmell. Each has its little cup formed of one leaf, tubular at the baſe, and cut into five ſmall ſegments at the edge.

The flower is formed of one petal: this is tubular at the baſe, and at the rim is cut into five obtuſe ſegments: and the opening at the top is covered by five convergent ſcales. The filaments are five; they are very ſhort, they ſtand in the mouth of the flower, and have ſmall covered buttons. The ſtyle is ſingle, and four naked ſeeds follow: the cup is their only defence.

Culture of this Heliotrope.

This plant is a native of the warmer parts of the Weſt-Indies, lives on the ſandy ſhores, and is annual.

This directs our culture. Let ſeeds be procured from its native country, and ſown in a pot of ſome light compoſt, mixed with one third part ſand, and wetted with a little brine. Let the pot be ſet up to the rim in a bark-bed; and when the young plants are three inches high, they muſt be tranſplanted into ſeparate pots. They muſt be watered and ſhaded till they have taken root, and afterwards brought into the ſtove. With good management they will ripen ſeeds here: but the beſt plants are produced from thoſe brought from the native place.

Black HELLEBORE, *Helleborus*, a genus of plants, ranged by Linnæus among the *polyandria pologynia*, and of which there are five ſpecies. 1. Black Hellebore, with the flower ſitting on the leaf; or the common Winter Aconite. 2. Black Hellebore, with the flower-ſtalk almoſt naked, and with the main foot-ſtalk of the leaf divided into two parts; or the true Black Hellebore, called Chriſtmas Roſe. 3. Black Hellebore, with many flowers on a leafy ſtalk, intermixed with finger-ſhaped leaves; or Bear's-foot. 4. Black Hellebore, with many flowers on a leafy ſtalk, intermixed with leaves on foot-ſtalks; or the ſtinking Black Hellebore, called alſo Bear's-foot, or Setterwort. 5. Black Hellebore, with trifoliate leaves, and one flower on a ſtalk.

The firſt ſpecies is too well known to need any deſcription, being the common Winter Aconite. It flowers very early in the ſpring, which renders it worthy a place in every curious garden, eſpecially as it requires very little room.

The ſecond ſpecies, known by the name of the Chriſtmas Roſe, is a plant which riſes to no great height. The root is compoſed of innumerable thick, black fibres, long, tough, and variouſly entangled, riſing from a ſmall head, and ſpreading every way to a vaſt diſtance. The leaves are large and numerous, and are divided in that coarſe fingered manner, which modern botaniſts term pedated. The foot-ſtalk is thick, ſhort, and juicy: it uſually riſes ſlanting, and is of a freſh green; when the plant is in full perfection, it is ſtained with red, in various and irregular little ſpots. The leaves are placed on its divided top, and forming what is called the entire pedated leaf, are uſually nine; they are oblong, broad, of a ſtrong green, and of a very firm ſubſtance, indented round the edges, on their extreme part, but perfectly entire below, and often cut into a ſmall point at the end. The diviſions of the foot-ſtalk at the end are always coloured, either reddiſh or browniſh; and in the beſt condition of the plant, theſe, and the main rib on the back of the leaf, are purple.

The flowers appear among the leaves, each on its ſeparate ſtalk, and theſe ſcarce longer than thoſe of the leaves, but the ſize of the flower renders it very conſpicuous. The ſtalk is fleſhy, round, of a pale green, and elegantly ſpotted with crimſon; it is rarely quite upright, not from the weight of the flower bending it, but from winds and ſevere ſeaſons. There grows no proper leaf upon this ſtalk, but cloſe under the flower there is a filmy ſubſtance, and ſometimes below this another; theſe ſerve in ſome degree, as a defence to the young flower. The flower is about the ſize of a ſingle roſe, expanded, white, or variouſly ſtained with crimſon. Sometimes the white is perfect, and at others the red is ſhewn throughout; but in the moſt elegant ſtate, the two colours are mixed, the red being moſt predominant on the outſide of the flower. In the centre are numerous filaments, ſupporting yellow buttons, and from the baſe riſe up a kind of horns, which ſhew their curled tops above the cluſter, and are of a pale green. Round about the filaments, are numerous open cups, as it were, of a ſtrong green, tipped with gold.

The third ſpecies grows naturally in Cambridgeſhire and Oxfordſhire. The ſtalks riſe about two feet high. The leaves are compoſed of nine long lobes, which unite to the footſtalk at their baſe, they are ſharply ſawed on their edges, and of a light green. The flowers are produced at the top of the ſtalk; they are compoſed of five oval green petals, with a great number of ſtamina ſurrounding the germen ſituated in the middle; theſe appear the beginning of February, and the ſeeds ripen the end of May.

The fourth ſpecies grows naturally in ſeveral parts of England. It riſes with a jointed herbaceous ſtalk two feet high, divided into two or three heads. The leaves are compoſed of eight or nine long narrow lobes, which join at their baſe; they are ſawed on their edges, and end in acute points; thoſe on the lower part of the ſtalk are much larger than the upper which are ſmall and narrow. The flower-ſtalk riſes from the centre of the plant dividing into many branches, each have ſeveral ſmaller footſtalks, with one entire ſpear-ſhaped leaf upon each, and one large greeniſh flower at the top with purpliſh rims; theſe appear in winter, and the ſeeds ripen in the ſpring.

The fifth ſpecies grows naturally in Canada and Siberia. It riſes about two feet and a half high, having broad trifoliate leaves. This plant flowers early in winter, but is very ſeldom to be met with in England.

Culture of the Black HELLEBORE.

The firſt ſpecies is propagated by off-ſets, which the roots ſend out in great plenty. Theſe roots may be taken up and tranſplanted any time after their leaves decay, which is generally by the beginning of October, when they will begin to put out new fibres; but as the roots are ſmall, and nearly of the colour of the ground, if great care is not taken many of them will be loſt.

Theſe roots ſhould be planted in ſmall cluſters, otherwiſe they will not make a good appearance, for ſingle flowers of theſe ſmall kinds ſcattered about the borders, are ſcarce ſeen at a diſtance; but when theſe and the Snowdrops are alternately planted in bunches, they will have a good effect, as they flower at the ſame time, and are much of the ſame ſize.

The ſecond ſpecies may be propagated by ſeeds; but the moſt expeditious method is by parting of the roots, which ſhould be done about the beginning of May, and planted out at eighteen inches diſtance in a border which is expoſed to the morning ſun only; after this they will only require to be kept free from weeds, and watered at times, and they will flower the ſucceeding ſeaſon.

The third ſpecies is propagated by ſeeds which ſhould be ſown in May ſoon after they are ripe, and the plants will come up early the following ſpring, and when they have obtained ſtrength may be planted in ſhady places under trees, where they will thrive and flower very well.

If the fourth ſpecies is permitted to ſcatter its ſeeds when ripe, the plants will riſe without care, and may be tranſplanted into woods, or in wilderneſs-quarters, where they will grow, and make a good appearance at a ſeaſon when there are but few plants in beauty.

White HELLEBORE, *Veratrum*, a genus of plants ranged by Linnæus among the *polygamia monoecia*, and of which there are four ſpecies. 1. White Hellebore with a decompounded ſpike, and erect petals. 2. White Hellebore with a compound ſpike, and very ſpreading petals, or dark-flowered White Hellebore. 3. White Hellebore with a ſingle ſpike, and leaves ſitting cloſe to the ſtalk. 4. White Hellebore with a ſingle ſpike of flowers, ſpreading petals, and longer ſtamina.

The firſt ſpecies grows naturally on the mountains in Auſtria, Helvetia, and Greece. The root is perennial, compoſed of many thick fibres gathered into a head. The leaves are ten inches long, and five broad in the middle, rounded at the points, having many longitudinal ribs. The ſtalks riſe three or four feet high, and branch out on every ſide almoſt their whole length; under each of theſe branches is placed a narrow plaited leaf, which diminiſhes in its ſize as it is nearer the top of the ſtalk. The branches and principal ſtalk are terminated by ſpikes of flowers ſet very cloſe together, which are compoſed of ſix green erect petals; in their centre are ſituated three obtuſe germen. From the point of theſe riſe ſix ſtamina, which ſpread aſunder, terminated by four-cornered ſummits. Theſe are ſucceeded by oblong compreſſed capſules with one cell, filled with membranaceous ſeeds.

The root of the ſecond ſpecies is compoſed of numerous, thick, long fibres, connected to a ſmall head. The ſtalk is round, upright, firm, and near a yard high; naturally of a pale green, but often ſtained with a deep purple toward the ground. The leaves are placed alternately, and they have no footſtalks, but ſurround the ſtem at their baſes. They are very large, long, of conſiderable breadth, and marked with ſtrong and high ribs, all running lengthways; the ſurface of the leaf is rendered very uneven by theſe, and the aſpect is ſingular. The colour is of a pale green, often inclining toward yellowiſh, and the ſubſtance firm and harſh. The flowers crown the ſtalk in a vaſt cluſter, reaching a third part of its length; they are arranged on long common footſtalks, with ſhort hairy ones for every flower, and their colour is an extreme dark reddiſh purple. Singly they are not large, but the vaſt number of them renders the plant conſpicuous; many hundreds being often open at a time. Each flower is compoſed of ſix petals, and is placed naked upon the footſtalk without a cup.

The third ſpecies is a native of North-America. The root is tuberous. The leaves are oblong, having ſeveral longitudinal furrows, and ſpreading themſelves on the ground. Between theſe come out a ſingle ſtalk which riſes near a foot high, having a few very ſmall leaves or ſheaths, placed alternately; and at the top the flowers are produced in a ſingle, thick, cloſe ſpike; they are ſmall and of a yellowiſh white colour; but are rarely ſucceeded by ſeeds in England.

The fourth ſort grows naturally at Philadelphia. The root is compoſed of thick fleſhy fibres. The leaves are oblong, oval, of a light green colour, having ſix longitudinal veins, they are rounded at the points, and continue the year. In the centre of the leaves ſprings up a ſingle erect ſtalk a foot high, having a few veſtiges, or ſmall leaves, ſtanding alternately cloſe to the ſtalk, which end in acute points. The ſtalk is crowned by a thick obtuſe ſpike of dark red flowers, whoſe petals ſpread open flat. This plant flowers the latter end of June, and in warm ſeaſons the ſeeds will ripen here..

Culture of the White HELLEBORE.

All theſe ſpecies may be propagated either by ſeeds or parting the roots: the latter is the moſt ready way, and ſucceeds very well; but the other is the only method by which fine plants can be obtained.

The ſeaſon for parting the roots is either in ſpring or autumn, but the former is the moſt preferable ſeaſon, as the plants are ſure to ſucceed beſt.

The ſoil ſhould be a mixture of freſh paſture earth, and rich garden mould in equal quantities; a bed ſhould be made of this, and dug two ſpades deep, and perfectly levelled, it ſhould be in a part of the garden open to the morning ſun, and not ſhaded by trees. The roots muſt be planted at eighteen inches diſtance, and watered and weeded in the common way. Every autumn and ſpring the ſurface of the mould muſt be well broke between the plants; and every third year, when they ſhould be taken up for parting, the whole ſoil muſt be dug out, and freſh put in its place; or the plants muſt be ſet in another border.

The ſeeds ſhould either be ſaved from the ſtouteſt plants here, or procured from the places where they grow naturally. Theſe ſhould be ſown in autumn; and the following ſpring, they muſt be often watered, and the bed kept clean from weeds; and where they have riſen too cloſe they muſt be thinned. The ſucceeding ſpring they muſt be planted out at ſix inches diſtance in another bed; and the ſpring ſucceeding that, into the garden, where they will flower, according to the various accidents of their growth, that or the ſucceeding ſummer.

Baſtard HELLEBORE, *Serapias*, a genus of plants of which there are many ſpecies, growing naturally in England and Ireland; but they are ſeldom kept in gardens, being difficult to propagate.

Culture of the Baſtard HELLEBORE.

Theſe plants may be taken up from the places where they grow naturally, when their leaves begin to decay, and planted in a ſhady, moiſt place, where they will thrive and flower.

HELMET-FLOWER, or SKULL-CAP, *Scutellaria*, a genus of plants, of which there are ſix ſpecies. 1. Helmet-flower, with almoſt heart-ſhaped, ſawed leaves, and interrupted ſpikes of flowers. 2. Helmet-flower, with obtuſe, heart-ſhaped leaves, which are bluntly ſawed, and leafy ſpikes of flowers. 3. Helmet-flower, with oblong, acute-pointed, heart-ſhaped, ſawed leaves, and almoſt naked ſpikes of flowers. 4. Helmet-flower, with cut leaves, which are woolly on their under ſide. 5. Helmet-flower, with oval leaves ſitting cloſe to the ſtalks, the under of which are ſometimes ſawed, and the upper entire. 6. Helmet-flower, with ſawed, cut leaves, which are ſmooth on both ſides, and a roundiſh, four-cornered ſpike of flowers.

The firſt of theſe ſpecies grows naturally in Italy. It has a perennial root, and the ſtalk is four-cornered, hairy, and riſes two feet high. The leaves are heart-ſhaped, ſawed on their edges, and placed oppoſite. The flowers grow in interrupted ſpikes at the tops of the ſtalks. In ſome the colour is purple, and in others white.

The ſecond ſpecies is a native of Crete. This riſes with a ligneous ſtalk about two feet high, ſending out ſlender ſide branches. The leaves are obtuſe, heart-ſhaped, bluntly ſawed on their edges, hoary on their under ſide, and of a bright green on their upper. The flowers are ſituated on the tops of the ſtalks, in long ſpikes; they are white, and have ſmall leaves growing between them.

The third ſpecies is a native of the Levant. The root is perennial. The ſtalks riſe from three to four feet high, ſending out a few ſlender branches from their ſides. The leaves are oblong, heart-ſhaped, ending in acute points, and ſawed on their edges. The flowers are diſpoſed in naked ſpikes, at the tops of the ſtalks; their colour is purple, and they have longer tubes than any of the other ſorts.

The fourth ſpecies, which is alſo a native of the Levant, is a perennial plant, with ſhrubby ſtalks, which ſpread on the ground. The leaves are almoſt triangular, placed oppoſite, of a light green on their upper ſide, and downy on their under, ſtanding upon ſlender foot-ſtalks. The flowers are ſituated at the ends of the branches, in ſhort ſpikes; they are of a bright yellow, and are ſucceeded by grey ſeeds, which ripen in the empalement.

The fifth ſort grows naturally in North America. It has a perennial root, from which ariſe ſeveral four-cornered ſtalks, two feet high, ſending forth ſide-branches The lower leaves are heart-ſhaped, ſawed on their edges, and ſtanding upon long foot-ſtalks. The upper leaves are oval and entire. The flowers are blue, and ſituated in long looſe ſpikes, at the ends of the branches; theſe are ſucceeded by ſeeds, which ripen in the empalement.

The ſixth ſpecies grows naturally on the Alps and Appennines. The ſtalks are ſhrubby, and trail on the ground. The leaves are ſmooth, and cut on their edges. The flowers crown the ſtalks in roundiſh, four-cornered ſpikes; in one they are white, and in another variety blue; they are larger than the flowers of any other known ſpecies, and make an agreeable variety in gardens.

Culture of the HELMET-FLOWER.

Theſe plants are all propagated by ſeeds, which if ſown in autumn, ſoon after they are ripe, they will more certainly ſucceed, than when they are ſown in the ſpring.

The ſeeds may either be ſown where the plants are to remain, or in a border, to be afterwards removed; but as the fourth ſpecies does not bear tranſplanting well, unleſs they are removed young, the ſeeds of that had better be ſown where the plants are to ſtand; this ſhould be on a dry, warm border of poor earth, where the plants will live much longer, and make a better appearance than on a rich ſoil. When the plants come up, they will require no other care but to thin them, and keep them clean from weeds.

When the other ſorts come up, and are fit to remove, they may be tranſplanted into a nurſery bed, at five or ſix inches diſtance, where they may ſtand till autumn, but muſt be kept clean from weeds; then they may be tranſplanted into the borders of the flower-garden, where they are to remain.

As theſe plants are not of long duration, it will be proper to ſow a ſucceſſion of ſeeds every other year, at leaſt, to ſupply the places of thoſe which decay.

HEMLOCK, *Cicuta*, a genus of plants, of which there are only two ſpecies. 1. Hemlock, with umbels oppoſite to the leaves, and obtuſe, marginated foot-ſtalks; or Water Hemlock. 2. Hemlock, with pointed ſerratures to the leaves, and membranaceous foot-ſtalks, ending in two lobes.

The firſt ſpecies grows naturally in ſtanding waters, in moſt parts of England, and is never cultivated in gardens. The ſecond ſpecies is a native of North America.

Culture of the HEMLOCK.

The ſecond ſpecies is propagated by ſeeds, which ſhould be ſown in autumn, in a ſhady border; the plants will come up in the ſpring, and require no other care than to be kept clean.

HENBANE, *Hyoſcyamus*, a genus of plants, ranged by Linnæus among the *pentandria monogynia*, and of which there are five ſpecies. 1. Henbane, with leaves embracing the ſtalks; or the common Henbane. 2. Henbane, with leaves upon foot-ſtalks, and ſeſſile flowers. 3. Henbane, with leaves upon foot-ſtalks, and flowers upon foot-ſtalks, terminating the branches. 4. Henbane, with ſpear-ſhaped leaves, ſomewhat indented, and a prickly cup. 5. Henbane, with oval, entire leaves, and ſwollen globular cups.

The firſt ſpecies grows commonly upon the ſides of banks and dunghills, in this country.

The ſecond is a native of the ſouth parts of Europe.

The third grows naturally in the iſlands of the Archipelago.

The fourth is a native of Perſia, and the fifth of Siberia.

Culture of the HENBANE.

The four firſt ſpecies are all biennials, and periſh ſoon after they have perfected their ſeeds, which if permitted to ſcatter, will produce plenty of the plants the ſpring following; or, if the ſeeds are ſown at that ſeaſon, they will ſucceed much better than in the ſpring. As theſe ſeldom come up the firſt year, they require no other culture, but to be kept clear from weeds, and thinned where they grow too cloſe.

The fifth ſpecies is a perennial plant, and may be propagated either by ſowing the ſeeds ſoon after they are ripe, or by cuttings, planted in any of the ſummer months.

Good HENRY. See the article GOOSE-FOOT.

HEPATICA, or NOBLE LIVERWORT, a genus of plants, ranged by Linnæus among the *polyandria polygynia*, and of which there are five ſpecies. 1. The ſingle Blue Hepatica, or Noble Liverwort. 2. The double Blue Hepatica, or Noble Liverwort. 3. The ſingle White Hepatica, or Noble Liverwort. 4. Single Red Hepatica, or Noble Liverwort. 5. Double Red, or Peach-coloured Hepatica.

Theſe plants are ſome of the greateſt beauties of the ſpring; their flowers are produced in February and March in great plenty, before the green leaves appear, and make a very beautiful figure in the borders of the pleaſure-garden, eſpecially the double ſorts, which commonly continue a fortnight longer in flower than the ſingle, and the flowers are more beautiful; and the moſt elegant among them is the ſecond ſpecies, the culture of which is proper for all the reſt.

Double Blue HEPATICA. The root is large, and when it has ſtood ſome time, divides into many heads. It is covered in every part with innumerable fibres, moderately thick, and of a reddiſh black, variouſly entangled with one another.

The firſt production is the flowers; theſe riſe two or more, from every head of the root; ſo that from a plant of conſiderable ſtanding, it is not unuſual to ſee forty, fifty, or more in a cluſter, all riſing from one principal root. Theſe ſtand ſingly upon ſlender and weak foot-ſtalks, four inches in height, of a pale green, uſually tinged more or leſs with red. The flower which crowns each ſtalk is large, and of a fine ſky-blue, crowded with oblong, undulated petals; and in the midſt decorated with a ſmall tuft of buttons, placed upon numerous filaments. The ſeeds follow, in the ſingle flowers, naked, and cluſtered together in an oval head; ſome alſo are ripened after the ſemi-double flowers; but from the perfect double rarely any.

Culture of the Double Blue HEPATICA.

Little care appears neceſſary in the culture of a plant, which ſtands all ſeaſons, and grows in any ſoil; but by purſuing the following directions, the gardener will have flowers of twice the common bigneſs, and of a much ſuperior colour. Theſe are to be obtained by ſowing ſeeds of the beſt kinds: for which purpoſe he ſhould mark the largeſt and fineſt of his ſingle, and ſome of his double flowers, and when they are almoſt ripe let him obſerve the leaves; thoſe heads which follow ſemi-double flowers, and are accompanied with the deepeſt purple leaves, are the fineſt; let him cut off theſe in the head, and lay them on a papered ſhelf. When they begin to fall, he muſt ſeparate them entirely, and ſpread them out again for eight or ten days longer, and then tie them up in bags.

In the beginning of Auguſt, dig up a border in a part of the garden, open to the morning ſun, but ſheltered from the full blaze of noon. Take out half the mould that you dig up, and mix with the reſt as much freſh earth from under the turf, in a rich upland paſture; break this very well together, rake the ſurface level, ſcatter on the ſeeds, and ſift over them a quarter of an inch of the ſame mould.

In ſpring the young plants will appear, and the weeds which riſe with them muſt be carefully taken up by hand; give them a gentle watering twice a week in dry weather, and from time to time clear away the weeds. In the beginning of Auguſt mark the beſt plants, and thin them to about eight inches diſtance. Let the weaker ones, which are taken up, be planted in other parts of the garden, but never remove the others out of their place.

The next ſpring ſome of them will flower, and the ſucceeding ſeaſon all the remainder. In their firſt bloom they will be very elegant, but it will be two years more before they arrive at their full perfection. From this time there will every year, be more and more numerous flowers from each root.

All the care they require, is to be kept clear from weeds, to have the ſurface of the mould ſtirred about them often, and every autumn to have half an inch of freſh paſture mould ſifted over them, taking away the old ſurface; this muſt be done with great care, not to wound the roots.

HERB *Bennet, Geum.* See the article GEUM.

HERB *Chriſtopher.* See BANEBERRIES.

Willow HERB. See WILLOW *Herb.*

HERBACEOUS, graſſy, or after the manner of graſs.

HERMANNIA, a genus of plants, for which we have no Engliſh name, ranged by Linnæus among the *monadelphia pentandria*, and he enumerates ſeven ſpecies of it. 1. Hermannia, with oval, folded, crenated, woolly leaves. 2. Hermannia, with oval leaves, acutely cut, and foot-ſtalks with two flowers. 3. Hermannia, with wedge-ſhaped, folded leaves, crenated and indented. 4. Hermannia, with obtuſe, ſpear-ſhaped, ſawed leaves. 5. Hermannia, with obtuſe, ſpear-ſhaped, entire leaves. 6. Hermannia, with trifoliate, ſeſſile leaves. 7. Hermannia, with narrow leaves, ending in many points.

All theſe ſpecies are ſhrubby plants. The firſt riſes about three feet high; the root is divided, white, and hung with fibres. The ſtem is brown. The branches, which ſpread variouſly, are whitiſh, tender, and covered with a ſoft down. The leaves ſtand upon theſe, in wild irregularity; they are oblong, deeply ſinuated along the edges, and of a whitiſh green, covered thick with a ſoft downy matter, which makes them feel like velvet. The flowers are very numerous, and of a ſingular aſpect: they grow at the tops of the branches, and on foot-ſtalks, from the boſoms of the leaves, two or three on each. They are very large, hang drooping, and are twiſted: their colour is a delicate pale yellow; they riſe from a downy cup, and at the baſe of their foot-ſtalks are placed regularly, three oblong, narrow, undivided leaves. The cup is formed of a ſingle piece, ſwelled at the baſe, and divided at the rim into five ſegments. The flower itſelf is formed of five oblong petals: theſe ſpread at the mouth, and turn toward the ſun; and at the baſe they grow very ſmall, and have on each a membrane, running ſideways, which together form a nectiferous tribe. In this flower ſtand five filaments, which lightly cohere at the baſe, and among theſe riſes a ſtyle, which exceeds them in length. The ſeed-veſſel is roundiſh, but has five ridges. The ſeeds are numerous and ſmall.

The ſecond ſpecies does not riſe ſo high as the firſt. It ſends out a great number of branches; and the leaves, which are ſmaller than thoſe of the former, are rough, and ſit cloſe to the branches. The flowers grow in ſhort cloſe ſpikes, at the end of every ſhoot, ſo that the whole ſhrub ſeems covered with flowers. They are of a bright yellow, and appear toward the end of April.

The third ſpecies riſes with a ſhrubby ſtalk, ſix or ſeven feet high, dividing into many irregular branches, covered with a brown bark. The leaves are wedge-ſhaped, narrow at their baſe, but broad and round at their top. The flowers grow in ſhort ſpikes, on the upper part of the branches; they are ſmall, and of a deep yellow. Theſe appear in April and May.

The fourth ſpecies riſes with a ſhrubby, upright ſtalk, ſeven or eight feet high, ſending out many ligneous branches from the ſide. The leaves are obtuſe, ſpear-ſhaped, and ſawed on their edges toward the end. The flowers are ſituated on the ſides of the ſtalks, in ſmall bunches; they are of a delicate ſtraw-colour, and appear in May and June.

The fifth ſpecies has ſhrubby, branching ſtalks, which are very buſhy, but ſeldom riſe more than a foot and a half high. The branches are very ſlender. The leaves are hairy, and of different ſizes; they are entire, of a pale green, and ſit cloſe to the branches. The flowers are placed ſingly on the ſides of the ſtalks; they are ſmall, and of a deep yellow colour.

The ſixth ſpecies ſeldom riſes more than two feet high. The ſtalk is ſoft and ligneous, ſending out ſlender irregular branches. The leaves are trifoliate, and ſtand upon pretty long foot-ſtalks. The flowers grow in looſe ſpikes, at the ends of the branches; at their firſt appearance they are of a bright gold colour, but in two or three days they become paler.

The ſeventh ſpecies riſes with a ſhrubby ſtalk, near three feet high, ſending out many ſlender branches, covered with a reddiſh bark. The leaves are narrow and wing-pointed. The flowers adorn the ſides of the branches in ſmall cluſters; they are of a deep yellow.

Culture of the HERMANNIA.

All theſe ſpecies are natives of the country about the Cape of Good Hope, and are propagated by cuttings, which may be planted during any of the ſummer months, in a bed of freſh earth, obſerving to water and ſhade them till they have taken root.

In about ſix weeks after planting, they muſt be taken up, with a ball of earth to their roots, and planted in pots, filled with light freſh earth, placing them in a ſhady ſituation till they have taken new root; after which they may be expoſed to the open air till ſome time in October, when they muſt be removed into the green-houſe, and have as much free air as poſſible: they require frequent waterings, and muſt be new potted twice a year, in May and September.

The plants may likewiſe be raiſed from ſeeds, which ſhould be ſown upon a moderate hot-bed; when the plants come up, they ſhould be tranſplanted into ſmall pots, and plunged into another moderate hot-bed, in order to promote their rooting; after which they muſt, by degrees, be inured to the open air, and may then be treated as the old plants; but they ſeldom produce good ſeeds in this country.

HERMODACTYLE, a ſpecies of Iris. See the article IRIS.

HERNANDIA, a genus of plants, known in the Weſt-Indies by the name of Jack-in-a-Box, and of which there is but one ſpecies.

It is very common in Jamaica, Barbadoes, St. Chriſtophers, and many other iſlands of the Weſt-Indies. The fruit, when ripe, is perforated, and the nut in the inſide becomes hard; ſo that when the wind blows through the fruit, it makes a whiſtling noiſe, which may be heard at a diſtance. In Europe this plant is preſerved in the gardens of the curious.

Culture of the HERNANDIA.

It is propagated by ſowing the ſeeds on a hot-bed in the ſpring: and when the plants are two inches high, they ſhould be tranſplanted each into a ſeparate pot, and plunged into the hot-bed again, where they muſt be watered and ſhaded till they have taken root, after which the air muſt be admitted to them in proportion to the warmth of the ſeaſon and the heat of the bed they are placed in.

As the plants advance, they ſhould be removed into larger pots, in doing of which, care ſhould be taken not to injure their roots, and alſo to preſerve a good ball of earth to them. They muſt be ſhaded from the ſun till they have taken freſh root. The beſt time for doing this, is in July, that they may be well rooted before the cold weather. They muſt be conſtantly kept in the bark-ſtove; in winter they ſhould have a moderate ſhare of heat, and plenty of air, in very hot weather.

HIBISCUS, *Syrian Mallow*, a genus of plants, ranged by Linnæus among the *monadelphia polyandria*, and of which he enumerates twenty ſpecies; of theſe the following eleven are cultivated in gardens. 1. Hibiſcus, with leaves divided in a foot-like manner, into five parts, and with the inner cups burſting ſideways; or Fig-leaved Hibiſcus. 2. Hibiſcus, with heart-ſhaped leaves, five angles bluntly ſawed, and a tree-like ſtalk, commonly called China Roſe. 3. Hibiſcus, with heart-ſhaped, target leaves, ſeven ſawed angles, and prickly hairs, commonly called Muſk. 4. Hibiſcus, with ſmooth, ſharp-pointed, oval, and ſerrated leaves; or oval-leaved Roſe Hibiſcus. 5. Hibiſcus, with oval, ſpear-ſhaped leaves, with the upper parts cut and ſawed, and a tree-like ſtalk, being the Syrian Retinia, commonly called Althæa frutex. 6. Hibiſcus, with entire, heart-ſhaped leaves. 7. Hibiſcus, with ſawed leaves, the lower oval and undivided, the upper divided into three parts, with a prickly ſtalk. 8. Hibiſcus, with hand-ſhaped, five-pointed leaves, and a prickly ſtalk. 9. Hibiſcus, with the lower leaves heart-ſhaped and angular, the upper ones ſomewhat ſpear-ſhaped, nodding flowers, and a recurved piſtil. 10. Hibiſcus, with oval-pointed, ſawed leaves, a ſingle ſtalk, and foot-ſtalks having flowers. 11. Hibiſcus, with trifoliate, cut leaves, and ſwollen cups, called Venice Mallow, or Flower-of-an-Hour.

The firſt ſpecies riſes to the height of four feet, robuſt, branched, and ſpreading; its leaves are large, and, in the higheſt degree, elegant. The root is fibrous; the branches are round and yellowiſh, and often purple at the joints. The leaves are numerous, and of a delicate green; thoſe near the bottom are divided, in the manner of a fig-leaf, into five principal parts; thoſe toward the top have only three diviſions, and ſometimes ſcarce any. The flowers are numerous and large; their ground colour is a very pale, but beautiful yellow, and they have ſtreaks of purple. Theſe flowers are ſcattered at diſtances along the upper branches, and each is ſurrounded at the bottom by a double cup. The petals are five; they are very large, expanded, and lightly folded toward the edge; of the two cups, the outer one is compoſed of eight narrow leaves, and remains with the fruit: the inner one is formed of a ſingle leaf, divided into five parts at the rim, and it remains with the other. The ſeed-veſſel is large, pyramidal, and furrowed upwards. In the center of this flower ſtands an obvious arrangement of antheræ, or button; the thread of theſe do not riſe ſingly, as in many flowers, but are united in a body, and form a kind of tube; from this grow the ſeveral antheræ, which ſtand ſeparate and clear.

The ſecond ſpecies is a large ſhrub, and with proper care will ſpread its branches in great regularity, or riſe in a ſingle ſtem, as a tree. The leaves are broad and deeply divided, ſometimes into three, but more uſually into five parts, which are pointed and ſerrated. Their colour is a lively green, and they are rough to the touch. The flowers are very numerous, and of the bigneſs of the double Piony, which they equal alſo in the multiplicity of leaves or petals. They give a vaſt glow by ſize and number; and their variety of colours charms the eye yet more. They have diſtinctly three appearances. As they juſt open from the bud, they are of a milky white; when half blown, they are tinged with a fleſhy red; and when at their full perfection, they are of a deep purple. Their petals ſtand in three or more ſeries, and they are curled and crumpled, ſo as to reflect the light in a variety of ſhades and tincts. The eye may look with wonder upon one of them many hours together.

The third ſpecies is three feet high; the root is fibrous and ſpreading. The ſtalk is round, upright, and branched with a beautiful regularity. The leaves are very beautiful and large; they ſtand on long foot-ſtalks, which are inſerted underneath in the main body of the leaf; they are broad, and beautifully angulated; thoſe in the lower part of the flower have ſeven corners; about the middle of the ſtalk each leaf has five; and at the top they have only three. The ſurface of the leaf is rough; its colour is a fine green, and its veins are purple. The flowers are numerous and very large; they are diſpoſed at diſtances upon the ſtalks. From near the bottom to the top, they are vaſtly large, and of a pale, but very lively yellow, ſtained in the center with a bloody circle; each is compoſed of five large petals, and placed in a double cup. When theſe are fallen, there appears a large brown ſeed-veſſel, in which are numerous ſweet-ſcented ſeeds.

The fourth ſpecies riſes to ſix or eight feet in height a ſpreading ſhrub. The root is fibrous; the trunk is covered with a brown rough bark; the younger ſhoots are grey and ſmooth, and their inner bark is green. The leaves are numerous, and of a handſome ſhape; they have long foot-ſtalks, and their colour is a pale, but elegant green; they are groſly ſerrated at the edges, and ſoft to the touch. The flowers are very large and beautiful; they terminate the branches, and their colour is a fine ſtrong red; they are naturally double, and the numerous petals which compoſe them, are curled and waved at the tops and edges. Each flower has a double cup: the outer whitiſh, and the inner green; the filaments being connected in the lower part, ſo as to form a kind of Cylinder, and their buttons numerous; theſe are yellow, and the diviſions of the ſtyle are crimſon. This ſhrub is a native of the Eaſt-Indies, and is one of the fineſt and moſt valued of their productions. The flowers are no leſs conſpicuons for their number than their ſize and colour, and they there cover the branches throughout all the year. With us it muſt not be expected to attain this degree of perfection; but we may raiſe it to ſo much excellence, as to eclipſe moſt of our ſtove-plants.

The fifth ſpecies is commonly called Althæa Frutex by thoſe who propagate the ſhrubs for ſale. Of this there are four or five varieties: the moſt common has pale purple flowers with dark bottoms, a ſecond has bright purple flowers with black bottoms, a third has white flowers with purple bottoms, and a fourth variegated flowers with dark bottoms; there are alſo two with variegated leaves, which are by ſome much eſteemed.

Theſe ſhrubs grow naturally in Syria, and are beautiful ornaments to a garden in the autumn. They riſe with ſhrubby ſtalks to the height of eight or ten feet. The branches are woody, and covered with a grey bark. The leaves are oval, ſpear-ſhaped, and the upper parts are frequently divided into three lobes. The flowers are ſituated at the wings of the ſtalks; they are large and compoſed of five roundiſh petals, which join at the baſe but ſpread open at the top, in ſhape of a bell; theſe appear in Auguſt and if the ſeaſon is not too warm, there will be a ſucceſſion of flowers part of September; they are ſucceeded by ſhort capſules with five cells, filled with kidney-ſhaped ſeeds.

The ſixth ſpecies grows naturally in both Indies; and riſes with a woody ſtem eight or ten feet high, dividing into ſeveral branches toward the top, which are covered with a woolly down. The leaves are round, heart-ſhaped, and ending in acute points; they are of a lucid green on their upper ſide, and hoary on their under, full of large veins and are placed alternately on the ſtalks. The flowers grow at the ends of the bunches in looſe ſpikes, they are of a whitiſh yellow, and are ſucceeded by ſhort acuminated capſules, opening in five cells, filled with large kidney-ſhaped ſeeds.

The ſeventh ſpecies riſes with an upright ſtalk ſeven or eight feet high. The lower leaves are oval, ſerrated, and entire, but the upper leaves are divided almoſt to the footſtalk, into five ſpear-ſhaped ſegments, like the fingers of a hand, ſtanding on very long footſtalks, having thorns at their baſe. The flowers are ſituated at the wings of the ſtalks; they are large, of a pale ſulphur colour, with a purple bottom, and are ſucceeded by oval, acuminated, prickly capſules, which open in five cells filled with large kidney-ſhaped ſeeds.

The eighth ſpecies is a native of Ceylon. It riſes with a prickly herbaceous ſtalk from two to three feet high, dividing upward into ſmall branches. The leaves are hand-ſhaped, and divided into five parts. The flowers are placed at the wings of the leaves; they are ſmall, white, with purple at the bottom, and are ſucceeded by ſhort obtuſe capſules with five cells filled with kidney-ſhaped ſeeds.

The ninth ſpecies grows naturally about Venice. It riſes three, and ſometimes four feet high. The lower leaves are angular and heart-ſhaped, but the upper are ſpear-ſhaped and ſlightly indented on their edges. The flowers are ſituated at the wings of the leaves upon long footſtalks, they are of a purple colour with a dark bottom, and are ſucceeded by five-cornered capſules, filled with kidney-ſhaped ſeeds.

The tenth ſpecies is a native of North America. The ſtalk is herbaceous and never branches. The leaves are oval, with three lobes, which are not deeply divided; they are of a bright green on their upper ſide, but of an aſh colour on their under. The flowers are ſituated at the wings of the ſtalks; they are large and of a bright purple.

The eleventh ſpecies is a native of the Cape of Good Hope. It has ſtrong, hairy, branching ſtalks. The leaves are broad, the lower being divided into three and the upper into five obtuſe lobes, which are crenated on their edges. The flowers are large and of a pale purple.

Culture of the Hibiscus.

The firſt ſpecies is propagated by ſeeds which muſt be ſown on a moderate hot-bed the latter end of March. When the plants have three or four leaves, let them be removed to another hot-bed: this will forward them greatly againſt the firſt months of ſummer. When the weather is ſettled warm, and cold nights are no longer feared, let them be removed in a ſhowery day, into a warm and well ſheltered border, where there is depth of good earth, well broke by tillage, and improved by rotten dung.

Here let them be ſhaded and gently watered till they have taken root; after which they muſt be kept clear of weeds, the ground about them often broke with a hoe, and their ſtems tyed up to ſhort firm ſtakes. They muſt be then well watered, and brought forward as much as poſſible: by this repeated care, one plant will produce at a time fifty flowers, and they will be tinged more or leſs with purple; often they will have a fleſhy red throughout.

The ſecond and fourth ſpecies are propagated by ſeeds, which in ſpring ſhould be ſown in pots of the following compoſt. Mix equal quantities of rotted wood, from the bottom of an old ſtack, and of fine garden mould; break theſe thoroughly, and ſift them. Then fill the pots with this within two inches of the rim. Lay in about twenty ſeeds upon the ſurface of the mould in each pot, and ſift more over them, till they are covered an inch, plunge them into a moderate hot-bed: thin the plants when they riſe, leaving only the two beſt in each pot. They muſt not be quite expoſed to the open air the firſt ſeaſon, and they will require the warmth of a moderate ſtove, but as they get more ſtrength, they may may be placed among the green-houſe plants. They uſually flower in November.

The ſeeds of the third ſpecies muſt be ſown the beginning of March, on a moderate hot-bed covered well with fine mould; and when the plants are about two inches high, they muſt be removed into another, where they are to ſtand at five inches diſtance. They muſt be watered lightly and ſhaded carefully till they have taken root; and then there muſt be as much air admitted as the ſeaſon will allow.

When they are grown to ſuch a height that they can no longer be contained in the frame, they muſt be carefully planted out into pots, and watered and ſhaded till they have taken root. They muſt after this be allowed as much free air as they can bear, and they will flower in great perfection.

The fifth ſpecies is alſo propagated by ſeeds which ſhould be ſown in pots filled with light earth, about the end of March, and if the pots are plunged into a gentle heat, it will greatly forward the growth of the ſeeds. When the plants come up they muſt be inured to the open air, and in May the pots may be plunged into the ground, in a border expoſed to the eaſt, where they may have the morning ſun, muſt they be kept clean from weeds, and in the ſummer ſeaſon, in very dry weather, gently refreſhed with water.

In autumn it will be proper to remove the pots under a common frame; or where there is not ſuch a conveniency, they may be plunged cloſe to a hedge, pale, or wall, to a good aſpect; and in ſevere froſt they ſhould be covered with mats, ſtraw, or other light covering. About the end of March let them be tranſplanted into a ſpot of light ground, divided into beds four or five feet broad, with paths two feet broad between them. Take the plants carefully out of the pots, with a ball of earth to their roots, and ſet them in theſe beds at nine inches diſtance; cloſe the ground gently about their roots, and let a little old tanners bark, or mulch be laid over the ſurface.

During the ſummer they muſt be kept clean from weeds, and in the autumn following be covered, eſpecially if they ſhoot late in the ſeaſon.

In theſe beds the plants may ſtand two years, by which time they will be fit to tranſplant where they are deſigned to remain: the beſt ſeaſon for doing which is about the end of March.

Theſe plants may alſo be propagated by cuttings, which if planted about the end of March, in pots filled with light earth, and plunged into a gentle heat, will take root. The ſeveral varieties of this ſpecies may be propagated by grafting upon each other.

The ſeeds of the ſixth, ſeventh and eighth ſpecies ſhould be ſown in the ſpring on a good hot-bed, and when the plants come up they ſhould be removed into pots, and plunged into a freſh hot-bed, treating them afterwards in the ſame way as the Amaranthus.

The ninth ſpecies is alſo propagated by ſeeds, which muſt be ſown in the ſpring on a moderate hot-bed, and when the plants are fit to remove, they ſhould be each planted in a ſeparate pot, and plunged into a hot-bed, treating them in the ſame way as the other tender ſorts, and allowing them a great ſhare of air in warm weather.

The ſtalks decay in the autumn, but if the pots are ſheltered from froſt under a hot-bed frame, they will continue ſeveral years, and put out new ſtalks in the ſpring.

The ſeeds of the tenth and eleventh ſpecies ſhould be ſown where the plants are deſigned to remain. Theſe require no other culture but to be kept clean from weeds and thinned where they grow too cloſe. If the ſeeds are permitted to ſcatter when ripe, the plants will come up full as well as when ſown.

HIG-TAPER, a ſpecies of Mullein. See the article MULLEIN.

HIPPOCRATEA, a genus of plants for which we have no Engliſh name, and only one ſpecies.

It is a native of South America, and grows with a ſlender twining ſtalk to the height of ten or twelve feet.

Culture of the HIPPOCRATEA.

The ſeeds of this plant muſt be procured from Campeachy, or other places where it grows naturally, and ſown in pots filled with light freſh earth, and plunged into the bark-bed in the ſtove, where they muſt conſtantly remain. When the plants come up they ſhould have very little water, as much wet would rot the roots; and in all reſpects treated as other tender ſtove-plants.

HIPPOMANE, *Manchineel*, a genus of plants of which there are three ſpecies. 1. Hippomane with oval ſawed leaves. 2. Hippomane with oval oblong leaves which are ſawed, and have glands at their baſe. 3. Hippomane with oval leaves which have prickly indentures.

The firſt ſpecies is a native of the Weſt Indies. It is a very large tree, almoſt equalling the Oak in ſize, with a browniſh bark. The trunk divides upwards into many branches. The leaves are oblong, ending in acute points, ſlightly ſawed on their edges, of a lucid green, and ſtand upon ſhort foot-ſtalks. The flowers are ſituated in ſhort ſpikes at the ends of the branches, which having no petals make but little appearance. Theſe are ſucceeded by fruit about the ſize and of the ſame ſhape as the Golden Pippin, turning of a yellow colour when ripe, which has often tempted ſtrangers to eat of them to their coſt, for being of a poiſonous quality, unleſs timely remedies are applied, they often prove fatal.

The ſecond ſpecies is a native of Carthagena in New Spain, where it grows as large as the firſt, only the leaves of this are much longer, and have two ſmall glandules growing at their baſe; they are ſawed on their edges, and are of a lucid green.

The third ſpecies grows naturally at Campeachy, it is of much humbler growth than either of the former, ſeldom riſing more than twenty feet high; the leaves of this greatly reſemble thoſe of the common Holly, and are ſet with ſharp prickles at the end of each indenture; they are of a lucid green and continue all the year.

Culture of the HIPPOMANE.

Theſe plants can never be expected to riſe to any great height in England, being too tender to live in our climate out of the ſtove.

They are eaſily raiſed from good ſeeds, which muſt be ſown upon a hot-bed, and when the plants come up, they ſhould be each planted in a ſeparate ſmall pot, and plunged into a good bed of tanners bark, treating them in the ſame way as other tender plants; but they muſt not have much wet, for they abound with an acrid milky juice, and ſuch plants are ſoon killed by much moiſture. In autumn they muſt be removed into the ſtove, and plunged into the tan-bed, where they ſhould conſtantly remain. In very hot weather they ſhould have a large ſhare of air admitted to them, and gently refreſhed with water.

HOE, a tool made like a cooper's addz, to cut upwards in gardens, fields, &c. This tool is commonly called the hand-hoe; for other ſorts of Hoes, ſee the next article. This inſtrument is of great uſe, and ſhould be more employed in hacking and clearing the ſeveral corners, cracks, and patches of land, in ſpare times of the year, which would be of no ſmall advantage thereto.

HOEING, according to Tull, is the breaking and dividing the ſoil by tillage, whilſt the corn, and other plants, are growing thereon. It differs from common tillage, which is always performed before the corn or plants are ſown or planted, in the time of performing it; and it is much more beneficial to the crops than any other tillage. This ſort of tillage is performed various ways, and by means of different inſtruments.

Land, which, before tilling, would have yielded little, though the more it is tilled before ſowing, the greater plenty of crop it yields; yet, if tilled only before the ſowing, will always have ſome weeds, and they will partake of the advantage of the tillage, as well as the corn; this is one reaſon for an after tillage, ſuch as that by Hoeing. But there is another: that is, that as ſoon as the ploughman has done his buſineſs by plowing, the ſoil of its own accord, begins to undo it all again, by tending towards its original texture, and ſpecific gravity, the altering of which was the only buſineſs of all the former tillage. The breaking the particles of the earth, and making in it new pores, and new ſuperficies, is the great buſineſs of the plough and harrow; but as ſoon as their uſe is over, the earth begins to coaleſce again to its own form: the particles unite together, and the artificial pores in a great meaſure cloſe up. The ſeed is nouriſhed in a worſe ground than it was at firſt put into, and the more the plant grows up and requires a larger ſupply of food, the worſe the paſture becomes; while nouriſhment is thus denied the growing plants, they are at the ſame time choaked with weeds, which being of a hardier nature than they, will grow with leſs ſupplies, and therefore thrive more vigorouſly, and rob them of a great part of the little food the land before allowed them. Tranſplanting is nearly allied to Hoeing, but it is much inferior; the nature of this will not admit of its being a general thing, and if it would, Hoeing is better; for by tranſplanting, the plants can only be kept up to a certain period, after which they will not bear it; but Hoeing may be uſed to them with advantage, to their utmoſt ſtanding, and makes them vigorous all the while. The roots of a plant are neceſſarily broken off in tranſplanting, and it requires ſome time for it to ſtrike a whole ſet of new ones; and if the earth about it is not kept thoroughly moiſtened all this time, the new formed roots will not be able to ſhoot, and the plant will ſtarve in the midſt of plenty; but on the contrary, in Hoeing, the ſame advantage of a new paſture for the plant is obtained, by breaking the particles of earth, and at the ſame time no more of the roots are broken off, than can eaſily be ſupplied, and the reſt remaining in their places, the plant continues growing without that ſtop and decay, which muſt happen on tranſplanting, and which it recovers only by degrees.

One great benefit of hoeing, is, that it keeps plants moiſt in dry weather, the advantage of which to their growth, is eaſily ſeen. This good office it performs; for being better nouriſhed by hoeing, they require leſs moiſture, and conſequently carry off leſs; for theſe plants, which receive the greateſt increaſe, having moſt terreſtrial nouriſhment, carry off the leaſt water in proportion to their augment, as is proved by Dr. Woodward's experiments. Secondly, the hoe, particularly the horſe-hoe, for the other does not go deep enough, procures moiſture for the roots, from the dew which falls moſt in dry weather; and theſe dews ſeem to be the moſt enriching of all moiſture, as it contains in it a fine black earth, which will ſubſide from it in ſtanding, and which ſeems fine enough to be the proper pabulum, or food for plants.

HOGS-FENNEL, or SULPHUR-WORT, *Peucedanum*, a genus of plants, of which there are four ſpecies.

cies. 1. Hogs-fennel, with leaves, which are divided by threes, and theſe again divided into three linear parts. 2. Hogs-fennel, with leaves cut into three parts, which are long, ſlender, and have irregular umbels; or greater Italian Hogs-fennel. 3. Hogs-fennel, with five leaves, divided by threes, which are very ſlender and ſhort, and a very large umbel. 4. Hogs-fennel, with very narrow, hair-like leaves, divided by threes, a very branching, ſpreading ſtalk, and irregular umbels.

The firſt ſpecies grows naturally in marſhy meadows, in ſeveral parts of Germany, and is ſuppoſed to do the ſame in England. It has a perennial root, from which the foot-ſtalks of the leaves riſe, which are channelled; they are naked at the bottom, but about four or five inches from the root, branch into three ſmaller foot-ſtalks, and theſe again divide into three, and each of theſe diviſions ſuſtain three narrow leaves, which when bruiſed, emit a ſtrong ſcent, like ſulphur. The ſtalks riſe near two feet high; theſe are channelled, and divided into two or three branches, each being terminated by a large regular umbel of yellow flowers, compoſed of ſeveral ſmall umbels, which are circular.

The ſecond ſpecies is a native of Italy. The root is perennial. The foot-ſtalks of the leaves are large and furrowed, dividing into three ſmaller branches, which are again divided into three, and theſe end with three long narrow lobes, or ſmall leaves, which are much longer than thoſe of the other ſort. The ſtalks, which ſuſtain the umbels, riſe near three feet high, and divide toward the top into ſeveral ſmall branches, each ſupporting an umbel, compoſed of ſeveral ſmaller rays, or umbels, which ſtand upon very long foot-ſtalks. The flowers of this are yellow, and ſhaped like thoſe of the former, but are much larger.

The third ſpecies grows naturally in many parts of France. It has a ſtrong perennial root, from which come out leaves, which branch into three diviſions, and theſe divide again into three ſmaller; each of theſe diviſions are decorated with five ſhort narrow leaves. The ſtalks are ſtrong, round, and not ſo deeply channelled as either of the former, ſuſtaining a very large umbel of yellow flowers, ſhaped like thoſe of the former ſorts.

The fourth ſpecies grows naturally on St. Vincent's rock, near Briſtol; it is a biennial plant: the leaves are ſhort and very narrow, ſpreading near the ſurface of the ground. The ſtalks riſe near a foot high, and are branched almoſt from the bottom; theſe branches are nearly horizontal, having a few ſhort narrow leaves on them, of a lucid green; each ſtalk is crowned with a ſmall umbel of flowers, which are of an herbaceous yellow colour, and ſmall.

Culture of the HOGS-FENNEL.

Theſe ſpecies are all propagated by ſeeds, which ſhould be ſown in the autumn, ſoon after they are ripe; for thoſe which are ſown in the ſpring ſeldom ſucceed: or if the plants come up, it is rarely before the following ſpring.

When the plants come up, they muſt be kept clean from weeds, and the autumn following they may be tranſplanted where they are to remain; they love a moiſt ſoil and a ſhady ſituation, but will not thrive under the drip of trees.

The roots of the three firſt ſpecies will continue ſeveral years, and every year produce flowers and ſeeds, but the fourth ſort ſeldom ripens ſeeds in a garden, they muſt therefore be procured from the places where it grows naturally.

HOGWEED, *Boerhavia*, a genus of plants, of which there are four ſpecies. 1. Hogweed with an erect ſtalk. 2. Hogweed with a diffuſed ſtalk. 3. Hogweed with a climbing ſtalk. 4. Hogweed with oval leaves, flowers coming from the wings of the leaves in cloſe heads, and a hairy trailing ſtalk.

The firſt ſpecies riſes with an upright ſmooth ſtalk, two feet high; at each joint it has two oval pointed leaves growing oppoſite; upon foot-ſtalks an inch long at the joints, which are far aſunder, come out ſmall ſide branches, growing erect; theſe, as alſo the foot-ſtalks, are terminated by looſe panicles of fleſh-coloured flowers, which are ſucceeded by oblong glutinous ſeeds.

The ſecond, third, and fourth ſpecies are natives of Jamaica. The ſecond ſends out many diffuſed ſtalks, a foot and a half long. The leaves are ſmall and round. The flowers are ſituated at the wings of the leaves, and the ends of the branches, upon long branching foot-ſtalks. They are of a pale red colour, and are ſucceeded by ſeeds like the former.

The third ſort ſends out ſeveral ſtalks from the root, which divide into many branches, and riſe to the height of five or ſix feet. The leave are heart-ſhaped, and grow by pairs oppoſite at each joint, upon long foot-ſtalks. The flowers are placed in looſe umbels at the extremity of the branches. They are yellow, and are ſucceeded by ſmall, oblong, viſcous ſeeds.

The fourth ſort ſends out many trailing hairy ſtalks, which divide into ſmaller branches, which are decorated with oval leaves at every joint; and at the wings of the leaves are ſituated naked foot-ſtalks, ſuſtaining a ſmall cloſe head of ſcarlet flowers, which are very fugaceous, ſeldom ſtanding more than half a day before their petals decay. Theſe are ſucceeded by ſhort oblong ſeeds.

Culture of the HOGWEED.

Theſe ſpecies are all propagated by ſeeds, which muſt be ſown on a hot-bed in the ſpring; and when the plants are fit to remove, they ſhould be each planted in a ſmall pot, and plunged into a hot-bed, and there treated in the manner of other tender exotics.

When they are grown too tall to remain under the common frame, a plant or two of each ſort ſhould be placed in the ſtove, the others may be turned out of the pots, and planted in a warm border, where, if the ſeaſon proves warm, they will perfect their ſeeds; but as theſe often fail in cold ſeaſons, thoſe in the ſtove will be of infinite uſe, as they are ſure to ripen their ſeeds there in autumn.

The firſt, ſecond, and fourth ſorts are annual plants. which decay in autumn; but the third ſpecies may be preſerved in a warm ſtove two or three years.

HOLLYHOCK, *Alcia*, a genus of plants, ranged by Linnæus among the *monodelphia polyandria*, and of which there are only two ſpecies. 1. Hollyhock with angular, ſinuated leaves. 2. Hollyhock with palmated leaves.

The firſt ſpecies has a long, thick, and white root, hung from all parts with innumerable fibres, which ſpread to a great diſtance when they have room, and a free ſoil. The firſt leaves are very large, and placed on long foot-ſtalks; they are broad, ſhort, deeply ſinuated, rough, and of a dark green. The ſtalk is round, erect, of a pale green, a little hairy, and ſeven or eight feet high. The leaves on this have alſo long foot-ſtalks; they have a general reſemblance of thoſe from the root, but they are longer in proportion to their breadth, of a paler colour, and more deeply ſinuated or waved at their edges, and are lightly indented between the deeper inciſions. The flowers form a ſpike from a little above the middle of the plant to the ſummit, being a yard or more in length: they ſtand thick, and in the various appearances of half-blown, full-opened flowers, and thoſe in the bud, they afford a pleaſing variety.

The full-blown flowers are equal to a roſe in ſize, and are of a delicate pale crimſon. The outer petals, which are large and elegantly expanded, are paleſt; the ſmaller, which form a globular body in the middle, are more waved, and of a deeper red: the whole very ſpecious and beautiful.

The ſecond ſpecies differs in nothing from the firſt but the ſhape of the leaves, thoſe of the former being ſomewhat round, and cut at their extremities into angles, and thoſe of the latter are deeply cut into ſix or ſeven lobes, ſo as to reſemble a hand.

Culture produces almoſt an infinite variety of this plant, viz. ſingle-flowered, double-flowered, deep red, pale red, blackiſh red, white, purple, yellow, fleſh-colour, ſome variegated flowers, &c. but in the whole compaſs of the colouring, there is no tinct in which the large and fine double Hollyhock appears ſo truly elegant, as the pale crimſon; nor is there any colour which is ſo ſcarce as this, in the full degree of perfection.

Culture of the HOLLYHOCK.

The ſeveral varieties of both theſe ſpecies may be raiſed by good management, from the ſame ſeed, in the following manner. When the Hollyhocks begin to flower, let the gardener pull up all bad kinds, that there may be no damage from their farina ſpreading, and impregnating the ſuperior kinds, which would cauſe them to degenerate. This done, let the others be encouraged to flower in their full ſtrength, by breaking the ground between them, and allowing frequent watering; and when it is ſeen which are moſt promiſing, let them be marked for ſeed, by tying each up to a firm ſtake. Let the head, or top of the ſpike be taken off, that too many flowers may not weaken the ſeeds ripening from the firſt, and if any ſide-ſhoots appear, they muſt be immediately taken off. When theſe ſeeds are perfectly ripe, cut off the head of the ſtalk, and the fruit muſt be taken off afterwards, and ſpread upon a papered ſhelf: turn them every day, and when quite hardened, let them be put up entire in paper bags, not ſhaking out the ſeeds, as is done on many occaſions. Theſe bags muſt be hung up during winter.

In the laſt week of March let a bed of good freſh mould be dug up in a part of the ſeminary which is open to the morning ſun. Let it be raked level, and lie a week to ſettle: then take off as much of the ſurface as will ſerve to cover the ſeeds a quarter of an inch: then ſcatter on the ſeeds, and ſift this mould over them. When the young plants come up, they will require weeding: the plants muſt alſo be thinned where they riſe too cloſe, and after this the whole bed muſt have a moderate watering: care muſt be taken in doing this, not to waſh away the earth from the roots of the young plants. After this, as they advance in growth, they muſt be thinned from time to time, but the plants taken up are not to be deſtroyed, but ſet in a nurſery bed dug for that purpoſe: by this means the remainder will gather ſtrength; and when they are of a bigneſs to crowd one another, let the whole be tranſplanted: at this time they ſhoot only leaves; for the Hollyhock is a biennial, and its ſtalk for flowering does not riſe till the ſecond ſeaſon.

When the leaves are ſo many and ſo large, that they crowd upon one another, let a ſecond bed be dug up in the nurſery two ſpades depth: the mould muſt be well broken, and the bed marked into ſquares, by lines drawn both ways, at a foot and a half aſunder. In the evening of a ſhowery day, let the plants be taken up, with as much of the mould as will come with them, and placed in the new bed, holes having firſt been opened in the center of each ſquare, for their reception; care muſt be taken to ſet their roots upright, and the mould muſt be gathered well about them: they muſt be watered often till they have taken root, and after that kept clear from weeds: this is all the management they require during the ſummer.

In the beginning of October they are to be tranſplanted into the places where they are to flower, and this muſt alſo be done with care, large holes muſt be opened for them; they muſt be dug out deep, and with as much of the earth as will adhere to them; the fibres muſt be trimmed off at their ends, juſt as they are placed in the ground; the mould muſt be well drawn up about them, and ſettled by a gentle watering, which muſt be repeated more largely the next day, and every day afterwards, till they are well eſtabliſhed. They will flower the ſucceeding ſummer, and they ſhould then be tied up to firm ſtakes, and encouraged to blow boldly by frequent weeding, breaking the earth about them, and good waterings. After this, there ſhould be in the ſame manner, a new ſucceſſion raiſed for the ſucceeding year: for the plants never flower ſo ſtrong or elegantly, as the firſt time.

HOLLY-TREE, *Ilex*, a genus of plants, ranged by Linnæus among the *tetrandria digynia*, and of which there are five ſpecies. 1. Holly-tree, with oval, acute, ſpiny leaves; or the common Holly. 2. Holly-tree, with oval, ſpear-ſhaped, ſawed leaves, commonly called Dahoon Holly. 3. Holly-tree, with oval waved leaves, whoſe borders are armed with ſtrong thorns, and their upper ſurface prickly, commonly called Hedge-hog Holly. 4. Holly-tree, with wedge-ſhaped, three-pointed leaves. 5. Holly-tree, with winged leaves.

Theſe are all ſhrubby plants. The firſt ſpecies grows naturally in woods and foreſts, in many parts of England, where it riſes from twenty to thirty feet high, and ſometimes more, but their ordinary height is not above twenty-five feet. The ſtem by age, becomes large, and is covered with a greyiſh ſmooth bark; and thoſe trees which are not lopped, or browzed by cattle, are commonly furniſhed with branches the greateſt part of their length, ſo form a kind of cone. The leaves are oblong, oval, of a lucid green on their upper ſurface, but pale on their under, having a ſtrong midrib; the edges are indented and waved, with ſharp thorns, terminating each of the points: ſome of theſe thorns are raiſed upward, and ſome bent downward, and being very ſtiff, renders them troubleſome to handle. The leaves are placed alternate on every ſide of the branches, and from the baſe of their foot-ſtalks come out the flowers in cluſters, ſtanding on very ſhort foot-ſtalks; each of theſe ſuſtain five, ſix, or more flowers: they are of a dingy white, and appear in May; they are ſucceeded by roundiſh berries, which turn to a beautiful red about Michaelmas, and continue on the trees, if they are not deſtroyed, till after Chriſtmas.

The ſecond ſpecies grows naturally in Carolina; there are two ſorts of it: one with ſpear-ſhaped, the other with linear leaves: it riſes with an upright branching ſtem, eighteen or twenty feet high. The bark of the old ſtem is of a brown colour, but that of the branches is green and ſmooth. The leaves are more than four inches long, and one and a quarter broad, in the broadeſt part; they are ſpear-ſhaped, of a light green, and a thick conſiſtence; their edges are ſawed on the upper part, each ſerrature ending in a ſmall ſharp pine. The flowers are ſituated in thick cluſters on the ſides of the ſtalks: they are white, and ſhaped like thoſe of the common Holly, but are ſmaller; in its native country theſe are ſucceeded by ſmall roundiſh red berries, which make a fine appearance in winter.

The third ſpecies is a native of Canada. The leaves are not ſo long as thoſe of the common Holly, and their edges are armed with ſtronger thorns, ſtanding cloſe together; the upper ſurface of the leaves is ſet cloſe with ſhort prickles, from whence the gardeners have given it the title of Hedge-hog Holly.

There are two varieties of this, with variegated leaves, one of which is yellow, and the other white.

There are alſo ſeveral varieties of the common Holly, with variegated leaves, which are propagated by the nurſery gardeners for ſale; among the moſt beautiful of theſe are the Gold-edged Hedge-hog Holly, Silver-edged Hedge-hog Holly, Blind's Cream Holly, Eale's Holly, Herefordſhire White Holly, Longſtaff's Holly, Partridge's Holly, Cheney's Holly, Cream Holly, Milkmaid Holly, &c. There is alſo a variety of this ſpecies with yellow berries, which are uſually found on thoſe plants, with variegated leaves.

The fourth and fifth ſpecies are natives of South America. They are never cultivated in this country, except in botanic gardens for the ſake of variety.

Culture of the HOLLY-TREE.

The firſt and third ſpecies are propagated by ſowing the berries in March: in order to which they ſhould be gathered in Auguſt, as ſoon as they are ripe, and kept in dry earth or ſand, till ſpring; the ground on which they are to be ſown muſt be well dug, and cleanſed from all noxious weeds, then levelled even, and the great clods broken; after this, ſeveral rills are to be drawn along it with a hoe of about two inches deep, and from one foot to two diſtant. In theſe the berries are to be laid two or three inches aſunder, and the ground then drawn over them with a rake.

In the middle of April the young plants will appear. The firſt year they only require to be kept clean from weeds, and will make very little progreſs; but the year following they will grow very quick, and in the March after their ſowing, the ground between the rows muſt be carefully and lightly dug up, which will greatly facilitate their taking root; and in April the plants which ſtand too cloſe muſt be taken up, and tranſplanted to the places where they are to remain. There is much care to be taken in the tranſplanting them, for having a long tap-root they are not ſo quick in taking root in a new ground, as thoſe which have more ſtringy ones.

The plants which are left in the ſeed-bed may remain there till autumn, and then ſhould be tranſplanted into beds at about ſix inches aſunder, where they may ſtand two years longer, during which time they muſt be conſtantly kept clean from weeds, and if the plants have thriven well, they will be ſtrong enough to tranſplant where they are deſigned to remain; for when they are tranſplanted at that age there will be leſs danger of their failing, and they will grow to a larger ſize, than thoſe which are removed when they are older. But if the ground is not ready to receive them at that time, they ſhould be tranſplanted into a nurſery in rows at two feet diſtance, and one foot aſunder in the rows, in which place they may remain two years longer.

The ſeveral varieties of this genus are propagated by budding or grafting them upon ſtocks of the common green Holly. The beſt time to do this is after the plants have grown one year in the laſt nurſery; but the plants ſo budded or grafted, ſhould continue two years after in the nurſery, that they may make good ſhoots before they are removed; but the plain ones ſhould not ſtand longer than two years in this nurſery, for when they are older they do not tranſplant ſo well.

The beſt time for removing Hollies is in the autumn, eſpecially in dry land; but where the ſoil is cold or moiſt, they may be tranſplanted with great ſafety in the ſpring; if they are not too old, or have not ſtood long unremoved, for if they have, it is a great chance whether they ever ſucceed when removed.

The common Holly is a very beautiful tree in winter, therefore deſerves a place in all plantations of ever-green trees and ſhrubs, where its ſhining leaves and red berries make a fine variety; and if the beſt variegated kinds are properly intermixed, they will enliven the ſcene. The Holly is alſo in much eſteem for hedges, and is a very proper plant for that purpoſe.

The ſecond ſpecies is propagated by ſeeds in like manner as the two former. The berries ſhould be buried in the ground a year, and then taken up and ſown in pots filled with light earth, and placed under a frame in winter; in the ſpring the pots ſhould be plunged into a hot-bed, which will bring up the plants. Theſe ſhould be preſerved in pots while young, and ſheltered in winter under a common frame till they have obtained ſtrength, when they may be turned out of the pots, and planted in the full ground in a warm ſituation.

Knee-HOLLY, or *Butcher's*-BROOM. See Ruscus.

Sea-HOLLY. See the article Eringo.

HONESTY. See Satin-Flower.

HONEY-*Flower*. See *Honey*-Flower.

HONEY-LOCUST, or *three-thorned* ACACIA, *Gleditſia*, a genus of plants ranged by Linnæus among the *polygamia dioecia*, and of which there are two ſpecies. Honey-locuſt with three thorns, winged leaves, very long broad pods, and a tree-like ſtalk, commonly called three-thorned Acacia. 2. Honey-locuſt with a few ſpines, winged leaves, and oval pods, containing one ſeed.

Both theſe ſpecies are natives of North America. The firſt riſes with an erect trunk, to the height of thirty or forty feet, armed with long ſpines, which have two or three ſmaller coming out from the ſide; theſe are frequently produced in cluſters at the knots, and are ſometimes three or four inches long. The branches are alſo armed with the ſame ſort of ſpines. The leaves are winged, compoſed of ten pair of ſmall leaves, which ſit cloſe to the midrib, and are of a lucid green. The flowers come out from the ſides of the young branches in form of katkins; they are of an herbaceous colour. The hermaphrodite flowers are ſucceeded by pods near a foot and a half long, and two inches broad, divided into many cells by tranſverſe partitions, each containing one ſmooth, hard, oblong ſeed, ſurrounded by a ſweet pulp.

The ſecond ſpecies has much the appearance of the firſt, but the ſpines are fewer, and very ſhort. The leaves are ſmaller, and the pods are oval, containing but one ſeed.

Culture of the Honey-locust.

Both theſe ſpecies are propagated by ſeeds, which muſt be procured from the places where the trees grow naturally, as they do not ripen ſeeds in this country.

The ſeeds may be ſown in ſpring upon a bed of light earth, burying them in the ground an inch deep, and if the ſpring ſhould prove dry, they muſt be frequently watered; and, as ſometimes they remain two years in the ground, ſuch as are deſirous to ſave time, ſhould ſow the ſeeds in pots, which may be plunged into a moderate hot-bed, to bring up the plants the ſame ſeaſon. They muſt be frequently watered, and gradually inured to bear the open air: during the ſummer ſeaſon, the plants in pots will require frequent waterings; but thoſe in the full ground will not dry ſo faſt, therefore need not have any water, unleſs the ſeaſon ſhould turn out very dry. In autumn the plants in the pots ſhould be placed under a hot-bed frame, to protect them from froſt; and thoſe in the ground ſhould be covered with mats on the firſt appearance of a froſt.

The following April the plants may be tranſplanted into nurſery beds at the diſtance of ſix inches, in rows a foot aſunder. If the ſeaſon ſhould prove dry, they muſt be watered; and if the ſurface of the bed is covered with moſs or mulch to prevent the earth from drying, it will be of great ſervice to the plants. Here they may remain two years, during which time they muſt be kept clean from weeds; and in the winter there ſhould be ſome rotten tan or other mulch ſpread over the ſurface of the ground, to keep out the froſt. If the plants have thrived well, they will now be fit to tranſplant to the places where they are deſigned to remain: the beſt ſeaſon for this is late in the ſpring; they thrive beſt in a deep light ſoil, for in ſtrong ſhallow ground, they become moſſy, and never grow large: they ſhould alſo have a ſheltered ſituation, for when they are much expoſed to winds, their branches are frequently broke, in the ſummer ſeaſon, when they are full of leaves.

HONEYSUCKLE, *Lonicara*, a genus of plants ranged by Linnæus among the *pentandria monogynia*, and of which he enumerates fifteen ſpecies, but eleven of them only are cultivated in the Engliſh gardens. 1. Honeyſuckle with whorls of flowers, ſitting cloſe at the ends of the branches, and the leaves ſurrounding the ſtalks, the Caprifolium of other authors, or the Italian Honeyſuckle. 2. Honeyſuckle with whorls of naked ſpikes, terminating the branches, and the upper leaves ſurrounding the ſtalk, or the ever-green Virginia Periclymenum, or Honeyſuckle which always flowers. 3. Honeyſuckle with oval imbricated heads, terminating the ſtalks, and all the leaves diſtinct, or the German Honeyſuckle. 4. Honeyſuckle with two flowers on a footſtalk, diſtinct berries, and ſawed leaves, being the Chamæceraſus of authors, or the Alpine Dwarf-Cherry, with a black twin fruit, called alſo black-berried upright Honeyſuckle. 5. Honeyſuckle with two flowers on a footſtalk, diſtinct berries, and blunt heart-ſhaped leaves. 6. Honeyſuckle with two flowers on a foot-ſtalk, diſtinct berries, and entire leaves, called Xylaſtelum, or the Fly Honeyſuckle. 7. Honeyſuckle with two flowers on a footſtalk, diſtinct berries, and oblong ſmooth leaves. 8. Honeyſuckle with two flowers on a footſtalk, and twin berries joined together. 9. Honeyſuckle with two flowers on a footſtalk, globular berries which are joined, and undivided ſtyles. 10. Honeyſuckle with lateral heads growing on foot-ſtalks, being the Symphoricarpos of authors, commonly called ſhrubby St. Peter's Wort. 11. Honeyſuckle with bunches of flowers terminating the branches, and ſawed leaves, or the Diervilla of authors.

Theſe are all ſhrubby plants. The firſt, third, fourth, fifth, ſixth, ſeventh, eighth, ninth, and tenth ſpecies are natives of different parts of Europe; and the ſecond, and eleventh of North America.

Culture of the HONEYSUCKLE.

The firſt, ſecond, and third ſpecies may be propagated by layers, cuttings, or ſeeds: if by layers the young ſhoots only ſhould be choſen for that purpoſe. Theſe ſhould be laid in the autumn, and by the following autumn they will have taken root, when they ſhould be cut off from the old plant, and either planted where they are to remain, or in a nurſery.

When they are propagated by cuttings, they ſhould be planted in September, as ſoon as the ground is moiſtened by rain. The cuttings ſhould have four joints, three of which are to be buried in the ground: they may be planted in rows, about a foot diſtance one from the other. The plants raiſed by cuttings are generally preferable to thoſe propagated by layers, becauſe they have commonly better roots.

When theſe plants are raiſed from ſeeds, they ſhould be ſown in autumn ſoon after they are ripe; otherwiſe the plants will not come up the firſt year. They will grow in almoſt any ſoil or ſituation, but thrive beſt in a ſoft ſandy loam.

The fourth, fifth, ſixth, ſeventh, eighth, ninth, and tenth ſpecies, may be propagated either by ſeeds or cuttings. The ſeeds commonly lie a year in the ground before they vegetate, but require no particular culture.

The cuttings ſhould be planted in autumn in a ſhady border, where they will put out roots the following ſpring. The next autumn they may be removed into a nurſery; and in two years after they may be tranſplanted to the places where they are deſigned to remain.

The eleventh ſpecies is eaſily propagated by ſuckers which thrive beſt in a moiſt ſoil, and a ſhady ſituation.

French HONEYSUCKLE, *Hedyſarum*, a genus of plants ranged by Linnæus among the *diadelphia decandria*, and of which he diſtinguiſhes no leſs than thirty-three ſpecies, but the following only are commonly cultivated in our gardens. 1. French Honeyſuckle with winged leaves, jointed, prickly, woolly pods, and a diffuſed ſtalk. 2. French Honeyſuckle with ſingle and trifoliate leaves, and flowers in bunches. 3. French Honeyſuckle with winged leaves, jointed, prickly, waved pods, and a diffuſed ſtalk. 4. French Honeyſuckle with ſingle, ſpear-ſhaped, obtuſe leaves, and a prickly, ſhrubby ſtalk.

The firſt ſpecies is a native of Italy, and a biennial plant which flowers the ſecond year, and ſoon after the ſeeds are ripe, the roots generally periſh. There are two varieties of it, one with a bright red and the other with a white flower.

The ſecond ſpecies is alſo a native of Italy; it has a perennial root, which will abide many years, if planted in a dry ſoil.

The third ſpecies is an annual plant, and a native of the Levant; and the fourth grows naturally in Syria.

Culture of the French HONEYSUCKLE.

The firſt ſpecies and its two varieties are propagated by ſowing their ſeeds in April, in a bed of light freſh earth; and when the plants come up they muſt be removed into beds of the like earth in an open ſituation, at about ſix inches diſtance from each other, leaving a path between every four rows, in order for hoeing and clearing them from weeds. In theſe beds let them remain till Michaelmas, and then they muſt be tranſplanted into large borders of a parterre, or pleaſure-garden; allowing them at leaſt three feet diſtance from other plants, among which they ſhould be interſperſed to continue the ſucceſſion of flowers.

The ſecond ſpecies is propagated by ſeeds, which ſhould be ſown in the beginning of April, and when the plants are two inches high, they may be tranſplanted where they are to remain, but if they are not too thick in the bed, they may be ſuffered to continue there till the following autumn, at which time the ſhould be carefully taken up and tranſplanted into the borders where they are deſigned to ſtand.

The ſeeds of the third ſpecies ſhould be ſown in April in the places where the plants are deſigned to ſtand: they will require no other culture but to thin them where they grow too cloſe, and to keep them clear from weeds.

The fourth ſpecies is alſo propagated by ſeeds which will frequently be a year in the ground before they vegetate; therefore they ſhould be ſown in pots filled with light freſh earth, and plunged into a moderate hot-bed; and if the plants do not appear by the beginning of June, the pots ſhould be taken out of the bed, and placed where they may have the morning ſun, keeping them clear from weeds.

In the autumn let them be plunged into an old bed of tanners bark, under a frame, where they may be ſcreened from the froſt and rains in the winter, and in the ſpring plunged into a freſh hot-bed, which will bring up the plants. When theſe are fit to remove, they ſhould each be planted into a ſeparate ſmall pot, filled with light earth, and plunged into a very moderate hot-bed, ſhading them from the ſun till they have taken new root; then they ſhould be gradually inured to bear the open air, into which they may be removed in June, placing them in a ſheltered ſituation. Here they may remain till autumn, when if they are plunged into an old tan-bed under a frame, they will ſucceed better than if placed in a green-houſe.

American upright HONEYSUCKLE, *Azalea*, a genus of plants ranged by Linnæus among the *pentandria monogynia*, and of which there are ſix ſpecies, but two of them only are cultivated in the Engliſh gardens, *viz.* 1. American upright Honeyſuckle with a white flower. 2. Red American upright Honeyſuckle.

The firſt of theſe is a low ſhrub riſing with ſeveral ſtems two or three feet high. The leaves come out in cluſters at the end of the ſhoots without order, and their edges are ſet with very ſhort teeth, which are rough. The flowers come out in cluſters between the leaves, at the extremities of the branches, which are white, with a mixture of dirty yellow on their outſide. They have a tube an inch long, and at the top are pretty deeply cut into five ſegments; the two upper are reflexed, the two ſide ones are bent inward, and the lower is turned downward, with five ſtamina a little longer than the petals; the ſtyle is much longer than the ſtamina. Theſe flowers have much the appearance of thoſe of the Honeyſuckle, and are as agreeably ſcented.

The ſecond ſort grows taller than the firſt, and in its native country, frequently riſes to the height of twelve feet, but in England is never more than half that height. This has ſeveral ſtems with oblong ſmooth leaves. The flower-ſtalks riſe from the diviſion of the branches, which are long and naked, ſupporting a cluſter of red flowers; they are divided at the top into five ſegments, which ſpread open. The ſtamina and the ſtyle are much longer than the petals, and ſtand erect.

Culture of the Red American upright HONEYSUCKLE.

Theſe plants grow naturally in ſhade, and upon moiſt ground, in moſt parts of North America, ſo they muſt have a moiſt ſoil and a ſhady ſituation, otherwiſe they will not thrive. They can only be propagated by ſhoots from their roots, for they do not produce ſeeds here, and if good ſeeds are obtained, they are difficult to raiſe, and are a great time before they will flower. But when they are in a proper ſituation, their roots extend, and put out ſhoots, which may be taken off with roots, and tranſplanted. The autumn is the beſt time to remove the plants, but the ground about their roots ſhould be covered in winter to keep out the froſt, and if this is every year practiſed to the old plants, it will preſerve them in vigour, and cauſe them to flower well.

HONEYWORT, *Cerinthe*, a genus of plants, ranged by Linnæus among the *pentandria monogynia*, and of which there are four ſpecies. 1. Honeywort, with leaves embracing the ſtalks, a double fruit, and a ſpreading blunt corolla; or the Greater Honeywort. 2. Honeywort, with leaves embracing the ſtalks, indented at their points, a double fruit, and a pointed cloſe corolla. 3. Honeywort, with entire leaves embracing the ſtalks, a double fruit, and a pointed, cloſed corolla; or Smaller Honeywort. 4. Honeywort, with narrow, ſpear-ſhaped leaves, ſet with prickly hairs, and four diſtinct ſeeds; or the greater Yellow Alkanet.

The firſt ſpecies grows naturally in Germany and Italy. It is an annual plant, and riſes with branching ſtalks a foot and a half high. The leaves are oval, oblong, and prickly; their colour is a ſea-green, ſpotted with white: and they embrace the foot-ſtalks with their baſe. The flowers are ſituated at the ends of the branches, ſtanding between the ſmall leaves; theſe are oblong, tubulous, blunt at the top, where the tube is greatly enlarged; their colour is yellow, and they have each four embryos or germen, but only two of them are fruitful. If the ſeeds are not taken as ſoon as they change black, they drop out of the empalement in a ſhort time, and unleſs they are carefully gathered up, they will vegetate with the firſt moiſt weather.

The ſecond ſort is very like the firſt, but the leaves are larger and ſmooth, having no prickles on them. The flowers of this are of a purpliſh red colour, and the plants grow larger. This is alſo a native of Italy, and an annual plant.

The third ſpecies grows naturally on the Alps, and other mountainous places. It riſes with very ſlender ſtalks, upwards of two feet high. The leaves embrace the ſtalks with their baſe, and are of a blueiſh green. The flowers are ſmall, their upper part is deeply cut into five ſegments, but the mouth of the tube is cloſely ſhut up.

The fourth ſpecies grows naturally in Hungary, Auſtria, and Italy. It has long, narrow, thick leaves, which are covered cloſely with rough, prickly hairs, and ſpread upon the ground; between theſe come out the ſtalk, which riſes a foot high; at each joint there is one leaf of the ſame ſort, but ſmaller, which are placed alternately on the ſtalks; towards the upper part the ſtalks branch out into two or three ſmaller, upon which the flowers ſtand between the leaves, and form a reflexed ſpike; they are of a pale yellow, and ſhaped like thoſe of the other ſorts, but ſmaller.

Culture of the Honeywort.

All the four ſpecies are propagated by ſeeds, which ſhould be ſown ſoon after they are ripe; for if they are kept till ſpring, the growing quality of ſome of them is often loſt. The plants are hardy, and if the ſeeds are ſown in a warm ſituation, they will endure the winters cold without ſhelter.

Theſe autumnal plants are alſo much ſurer to produce ripe ſeeds, than thoſe which are ſown in the ſpring, which are generally late in the ſpring before they flower; and conſequently, if the autumn ſhould not prove very warm, their ſeeds would not be perfected.

Theſe plants are proper to adorn large borders in gardens, where they form an agreeable variety.

HOREHOUND, *Marrubium*, a genus of plants, ranged by Linnæus among the *didynamia gymnoſpermia*, and of which he diſtinguiſhes nine ſpecies. 1. Horehound, with wedge-ſhaped leaves, and the whorls deſtitute of coats. 2. Horehound, with oval, ſpear-ſhaped, ſawed leaves, and briſtly indentures to the cups. 3. Horehound, with woolly leaves, almoſt oval, the upper parts of which are indented and crenated, with awl-ſhaped indentures to the cups. 4. Horehound, with hairy, erect, briſtly indentures to the cups. 5. Horehound, with hooked, briſtly indentures to the cups; or the common White Horehound. 6. Horehound, with roundiſh, heart-ſhaped, emarginated, and crenated leaves. 7. Horehound, with ſpreading borders to the cups, and acute indentures. 8. Horehound, with a plain hairy border to the cups, heart-ſhaped leaves, and a ſhrubby ſtalk. 9. Horehound, with the verge of the cup exceeding the tubular part in length, and their principal angle rounded.

Of theſe ſeveral ſpecies, which are all perennial plants, the eighth and ninth only are cultivated in gardens; they are natives of Crete, ſomewhat tender, and rarely produce ſeeds in this country.

Culture of the Horehound.

The two laſt ſpecies are propagated by cuttings, which if planted in a ſhady border, about the middle of April, will take root very freely.

The other ſpecies are eaſily propagated by ſeeds, which ſhould be ſown on a bed of dry, poor earth, in the ſpring; when the plants come up, they muſt be kept clean from weeds, and where they are too cloſe ſhould be thinned to the diſtance of a foot and a half, which is all the culture they require. They may alſo be propagated by cuttings, like the eighth and ninth ſpecies.

HORNBEAM, or HARDBEAM, *Carpinus*, a genus of plants, ranged by Linnæus among the *monoecia polyandria*, and of which there are only two. 1. Hornbeam, with plain ſcales to the cones; or the common Hornbeam. 2. Hornbeam, with inflated ſcales to the cones; or the Oſtrya, or Hop Hornbeam.

The firſt ſpecies is a native of Europe and North America, and of late years has never been cultivated but for underwood, and to form hedges.

It is rarely ſuffered to grow as a timber tree, being generally reduced to pollards by the country people; yet, where this tree is properly planted, it grows to a large ſize, and may be cultivated to great advantage, by the proprietors of cold barren hills, where it will thrive, though few other ſorts will grow.

The ſecond ſpecies is a native of North America. This is a very handſome foreſt-tree, and of quicker growth than the common ſort. It is large, and of a very good form, branched, and ſhadowy. The bark is brown on the trunk, and paler on the young branches. The leaves are very numerous, broad at the baſe, ſmaller to the point, and irregularly notched about the edges; their colour is a freſh and pleaſing green. The flowers are of two kinds, male and female, on different parts of the ſame tree, both in the form of catkins, and neither conſpicuous; the female are ſucceeded by fruit, which reſembling a hop in form and colour, has given the tree the appellation of Hop Hornbeam.

Culture of the Hornbeam.

When the common Hornbeam is propagated for timber, it ſhould be raiſed from ſeeds upon the ſame ſoil, and in the ſame ſituation, where it is deſigned to grow; but when it is intended for hedges, or underwood, it may be propagated by layers. The ſeeds of this ſpecies ſhould be ſown in autumn, ſoon after they are ripe. When the plants appear, they ſhould be cleared from weeds, and in two years time they will be fit to tranſplant; and as they advance in growth muſt be thinned, by cutting away gradually the moſt unpromiſing plants; this muſt be done with caution, ſo as not to let too much cold air, at once, on thoſe which are left.

The ſecond ſpecies is a hardy tree, and eaſily propagated by ſeeds, but as the young ſhoots take root freely, in the way of layers, that method is preferable. They ſhould be laid in autumn in the uſual manner, and not be cut off till the autumn following: they will, by that time, have very good roots, and ſhould be planted in a nurſery, to take two or three years growth, keeping them clear from weeds, and training them up to the intended form.

The uſual method of propagating theſe trees in the nurſeries, is by grafting them upon the common Hornbeam; but the graft always grows faſter than the ſtock, ſo that in a ſhort time there is a great diſproportion in their ſize; and where they happen to ſtand expoſed to ſtrong winds, the graft is frequently broke from the ſtock, after many years growth.

HORSE-CHESNUT. See *Horſe*-Chesnut.

HORSE-RADDISH, a ſpecies of Cochlearia. This plant has a perennial root, and is a native of moſt parts of Europe.

Culture of the HORSE-RADDISH.

It is propagated by cuttings or buds, from the ſides of old roots. The beſt ſeaſon for doing this is in October or February: the former for dry lands, the latter for moiſt; the ground ſhould be trenched at leaſt two ſpades deep, and more, if it will allow of it. The manner of planting it is as follows:

Provide yourſelf with a good quantity of off-ſets, which ſhould have a bud upon their crowns, no matter how ſhort they are; therefore the upper part of the roots, which are taken up for uſe, ſhould be cut off about two inches long, with the bud to it, which is eſteemed the beſt for planting: then make a trench ten inches deep, in which you ſhould place the off-ſets at about four or five inches diſtance, with the bud upward, covering them with the mould that was taken out of the trench: then proceed to a ſecond trench in like manner, and continue the ſame till the whole ſpot of ground is planted. After this, level the ſurface of the ground even, obſerving to keep it clear from weeds, until the plants are ſo far advanced, as to be ſtrong enough to overbear and keep them down.

With this management the roots of the Horſe-raddiſh will be long and ſtrait, and free from ſmall lateral roots; and the ſecond year after planting, will be fit for uſe.

HORTUS SICCUS, a dry-garden, an appellation given to a collection of ſpecimens of plants, carefully dried and preſerved.

The value of ſuch a collection is very evident, ſince a thouſand minutiæ may be preſerved in the well-dried ſpecimens of plants, which the moſt accurate engraver would have omitted. We ſhall therefore, give two methods of drying and preſerving an Hortus Siccus: the firſt by Sir Robert Southwell, in Phil. Tranſ. No. 237, and the other by Dr. Hill, in his review of the works of the royal ſociety, with the doctor's objections to Sir Robert's method.

According to the former gentleman, the plants are to be laid flat between papers, and then put between two ſmooth plates of iron, ſcrewed together at the corners, and in this condition ſet in an oven for two hours. When taken out, they are to be rubbed over with a mixture of equal parts of aquafortis and brandy: and after this, to be faſtened down on paper, with a ſolution, of the quantity of a walnut of gum tragacanth diſſolved in a pint of water.

To this the doctor objects, that the heat of an oven is much too uncertain to be employed in ſo nice an operation; and that the ſpace of time, ordered for the continuing the plants in it, is of no information, unleſs the degree of heat, and even the different nature of the plant, as to its more or leſs ſucculency, and the firmneſs or tenderneſs of its fibres, be attended to. There are ſcarce any two plants perfectly alike in thoſe particulars: and conſequently the heat, and duration of heat, that is ſufficient for one plant in a parcel, would deſtroy another. But beſides this he objects farther, that the acid deſtroys the colour of many plants, never recovers that of others loſt in the drying, and frequently, after the plant is fixed down, rots both the papers it is fixed to, and that which falls over it.

As to the doctor's own method, it is as follows: take of a ſpecimen of a plant in flower, and with it one of its bottom leaves, if it have any; bruiſe the ſtalks if too rigid: ſlit it if too thick; ſpread out the leaves and flowers on paper; cover the whole with more paper, and lay a weight over all. At the end of eighteen hours take out the plants, now perfectly flatted: lay them on a bed of dry common ſand, ſift over them more dry ſand, to the depth of two inches, and thus let them lie about three weeks: the leſs ſucculent dry much ſooner, but they take no harm afterwards. If the floor of a garret be covered in ſpring, with ſand two inches deep, leaving ſpace for walking to the ſeveral parts, it will receive the collection of a whole ſummer, the covering of ſand being ſifted over every parcel, as laid in. They need no farther care, from the time of laying them, till they are taken up, to be ſtuck on paper The cement uſed by the doctor, is thus prepared: early in the ſpring put two ounces of camphor into three quarts of water, in a large bottle: ſhake it from time to time; and when the firſt collected plants are ready for the faſtening down, put into a pint of the water, poured off into an earthen veſſel that will bear the fire, two ounces of common glue, ſuch as is uſed by the carpenters, and the ſame quantity of ichthyocolla, beat to ſhreds: let them ſtand ſix-and-thirty hours, then gently boil the whole a few moments, and ſtrain it off through a coarſe cloth; this is to be warmed over a gentle heat, when it is to be uſed, and the back of the plants ſmeered over thereby with a painter's bruſh: after this lay them on paper, and gently preſs them for a few minutes: then expoſe them to the air a little, and finally lay them under a ſmall weight, between quires of papers, to be perfectly dried.

It is ſcarce to be conceived how ſtrongly the water becomes impregnated with the camphor, by this ſimple proceſs: a part of it indeed, flies off in the making of the cement, and the uſing of it, but enough remains with the plant to prevent the breeding of inſects in it. He farther obſerves, that plants may be dried very well without ſand, by only putting them frequently into freſh quires of papers, or a few, by only preſſing them between the leaves of a book; but the ſand method preſerves the colour beſt, and is done with leaſt trouble.

Another method, much better than that of the oven, is the flatting and drying the plant, by paſſing a common ſmoothing iron for linnen, over the papers between which it is laid: but for nice things, the moſt perfect of all methods is that by a common ſand-heat, ſuch as is uſed for chemical purpoſes. The cold ſand is to be ſpread ſmooth on this occaſion, the plant laid on it, carefully flatted, and a thick bed of ſand ſifted over: the fire is then to be made, and the whole proceſs carefully watched, till by a very gentle heat the plant be perfectly dried. The colour of the tendereſt herb may be preſerved in this manner.

HOT-BEDS, in gardening, beds made with horſe-dung, or tanners bark, and covered with glaſſes to defend them from cold winds. By the ſkilful management of hot-beds, we may imitate the temperature of warmer climates; by which means the ſeeds of plants brought from any of the countries within the torrid zone, may be made to flouriſh even under the poles.

The hot-beds commonly uſed in kitchen gardens, are made with new horſe-dung mixed with the litter of a ſtable, and a few ſea-coal-aſhes, which laſt are of ſervice in continuing the heat of the dung. This ſhould remain ſix or ſeven days in a heap, and being then turned over, and the parts mixed well together, it ſhould be again caſt into a heap, where it may continue five or ſix days, by which time it will have acquired a due heat. Theſe hot-beds are made in the following manner: in ſome ſheltered part of the garden, dig out a trench of a length and width proportionable to the frames you intend it for; and if the ground be dry, about a foot and a half deep; but if it be wet not above ſix inches: then wheel the dung into the opening, obſerving to ſtir every part of it with a fork, and to lay it exactly even and ſmooth on every part of the bed, laying the bottom part of the heap, which is commonly free from litter, upon the ſurface of the bed: and if it be deſigned for a bed to plant out cucumbers to remain for good, you muſt make a hole in the middle of the place deſigned for each light, about ten inches over and ſix deep, which ſhould be filled with good freſh earth, putting in a ſtick to ſhew the place where the holes are; then cover the bed all over with the earth that was taken out of the trench, about four inches thick, and put on the frame, letting it remain till the earth be warm, which commonly happens in three or four days after the bed is made, and then the plants may be placed in it. But if your hot-bed is deſigned for other plants, there need be no holes made in the dung; but after having ſmoothed the ſurface with a ſpade, you ſhould cover the dung about three or four inches thick with good earth, putting over the frames and glaſſes, as before.

In making theſe beds care muſt be taken to ſettle the dung cloſe with a fork; and if it be pretty full of long litter, it ſhould be trod down equally on every part. During the firſt week or ten days after the bed is made, the glaſſes ſhould be covered but lightly in the night, and in the day time they muſt be carefully raiſed to let out the ſteam; but as the heat abates, the covering ſhould be increaſed, and as the bed grows cold, new hot dung ſhould be added round the ſides of it.

The hot-bed made with tanners bark is far preferable to that deſcribed above, eſpecially for all tender exotic plants and fruits, which require an even degree of warmth to be continued for ſeveral months, which cannot be effected with horſe-dung.

The method of making them is as follows: dig a trench about three feet deep, if the ground is dry; but if wet, it muſt not be above a foot deep at moſt, and muſt be raiſed two feet above the ground. The length muſt be proportioned to the frames intended to cover it, but it ſhould never be leſs than ten or twelve feet, and the width not leſs than ſix. The trench ſhould be bricked up round the ſides to the above-mentioned height of three feet, and filled in the ſpring with freſh tanners bark that has been lately drawn out of their vats, and has lain in a round heap, for the moiſture to drain out of it, only three or four days: as it is put in, gently beat it down equally with a dung-fork, but it muſt not be trodden, which would prevent its heating, by ſettling it too cloſe: then put on the frame covering it with glaſſes, and in about ten days or a fortnight, it will begin to heat, at which time plunge your pots of plants or ſeeds into it, obſerving not to tread down the bark in doing it.

Theſe beds will continue three or four months in a good temper of heat; and if you ſtir up the bark pretty deep, and mix a load or two of freſh bark with the old, when you find the warmth decline, you will preſerve its heat two or three months longer. Many lay ſome hot-horſe-dung in the bottom of the trench under the bark; but this ought never to be practiſed unleſs the bed is wanted ſooner than the bark would heat of itſelf, and even then there ſhould be but a ſmall quantity of dung at the bottom.

The frames which cover theſe beds ſhould be proportioned to the ſeveral plants they are deſigned to contain; if they are to cover the Pine-Apple, the back part ſhould be three feet high, and the lower part fifteen inches: if the bed be intended for taller plants, the frame muſt be made of a depth proportionable to them; but if it be for ſowing of ſeeds, the frame need not be above fourteen inches high at the back, and ſeven in the front; by which means the heat will be much greater.

A multiplying or drawing frame placed on the hot-bed is of infinite advantage for drawing curious annual plants to a due height.

This frame is compoſed of two, three, or more different frames, all made very exactly the ſame length and breadth; and each about nine or ten inches deep, except the frame for the glaſſes, which muſt be twelve inches deep in the front, and eighteen at the back. Theſe muſt all be made to fix one on the top of another in a very exact manner, ſo that, when they are joined together, the whole may have the appearance of one frame. Theſe frames are to be made uſe of in the following manner.

Begin firſt with the deepeſt, and when the plants have reached the glaſſes, let that be taken up, and in its place ſet one of the other, placing the deepeſt frame again on the top.

By this addition there will be a ſpace of ten inches more in height for the plants to ſhoot; which when they have attained, let another frame be added, and ſo on till they are all fixed; always obſerving to place the deepeſt frame uppermoſt on account of the glaſſes.

HOT-HOUSE, or STOVE, in gardening, a kind of conſervatory, artificially warmed, for the preſervation of thoſe tender exotic plants that are natives of the torrid zone, which without ſuch aſſiſtance are incapable of enduring the cold of this climate.

Stoves differ from green-houſes by being conſtantly warmed by fire; whereas green-houſes are deſigned for leſs tender plants, and merely to exclude the ſharpneſs of the external air in winter.

Of ſtoves there are two kinds, the dry and bark ſtove; and are of various conſtructions, according as conveniency or fancy directs. Of the dry ſtove we muſt refer to the article green-houſe, it being more immediately connected with it. But the following is a deſcription of a ſtove intended for thoſe very curious exotics which cannot poſſibly exiſt in this country, were it not for theſe artificial contrivances; ſuch as the All-Spice, Caſhew, Cabbage-tree, Cocoa-nut-tree, Date-tree, Fuſtic-tree, Ginger, Guaiacum, Log-wood, Manæ, Manchineel, Mimoſa, Bondue, Palm, Plantain, Sugar-Cane, Sugar Apple, Tamarind, with numbers of other plants which are natives of the Eaſt and Weſt-Indies, Africa, &c. On the plate facing this article, fig. 1, 2, 3, 4, 5, is a view of a ſtove of this kind with the ground plan and ſection; fig. 1 is a perſpective view, fig. 2 a perpendicular ſection of the back part of the hot-houſe; fig. 3, a plan, with the bark beds; fig. 4, a ſection of the flue; and fig. 5, a view of it.

The length of this ſtove is twenty-two feet; and the breadth, excluſive of the ſhed, is five feet; the back wall one foot two inches; and the front wall nine inches. This ſort of ſtove may be extended to any length at pleaſure, allowing a fire-place for every twenty feet, otherwiſe the houſe cannot be ſufficiently warmed in ſevere weather. The ſhed ſhould be erected at the back not only to keep the back of the ſtove warm, but alſo to receive the plants when it ſhould be neceſſary in winter to ſtir up the bark and refreſh it with new; as alſo to ſhelter the fires from the winds. The front of the ſtove ſhould be covered in bad weather either with tarpaulins or ſhutters, which will conſiderably add to the warmth, and ſave much fuel. The ſtove plants may be arranged according to their hardineſs; thoſe which are moſt ſuſceptible of cold ſhould be plunged in that part of the bark-bed which is neareſt to the fire-place, there being the greateſt heat; the other ſorts which are leſs tender may occupy the other parts of the bed; but they all ſhould be placed ſo as to form a theatrical ſurface; that is, the talleſt plants in the back, and the ſhorteſt in front, by which diſpoſition they will better receive the rays of the ſun. In the ſtove there ſhould be kept a well graduated thermometer, by which the heat may be regulated: this ſhould be hung up in the cooleſt part of the houſe, with the back of it toward the ſun, whereby the temperature of the air may be more accurately known, and the fires increaſed or diminiſhed accordingly.

HOUND'S-TONGUE, *Cynogloſſum*, a genus of plants ranged by Linnæus among the *pentandria monogynia*, of which there are ſix ſpecies. 1. Hound's Tongue with ſtamina ſhorter than the corolla, and broad ſpear-ſhaped, woolly leaves, growing cloſe to the ſtalk, or the common Hound's Tongue. 2. Hound's Tongue with oval leaves embracing the ſtalks. 3. Hound's Tongue with the corolla twice the length of the cup, and ſpear-ſhaped leaves. 4. Hound's Tongue with ſtamina equalling the corolla. 5. Hound's Tongue with ſmooth, ſpear-ſhaped, narrow leaves, commonly called Venus Navelwort. 6. Creeping Hound's Tongue with the lower leaves heart-ſhaped.

The five firſt ſpecies are annual plants. The firſt is an officinal plant growing naturally by the ſides of hedges and foot-ways in England and other countries in Europe.

The ſecond ſpecies is a native of North America. The third grows naturally in Spain, and the iſland of Crete. The fourth is a native of the Appenine mountains, and the fifth and ſixth are natives of Portugal. The ſixth is a perennial plant.

Culture of the HOUND'S TONGUE.

The five firſt ſorts are propagated by ſowing the ſeeds in autumn in the places where the plants are to remain, and

Facing Hot-house

figure. 1.

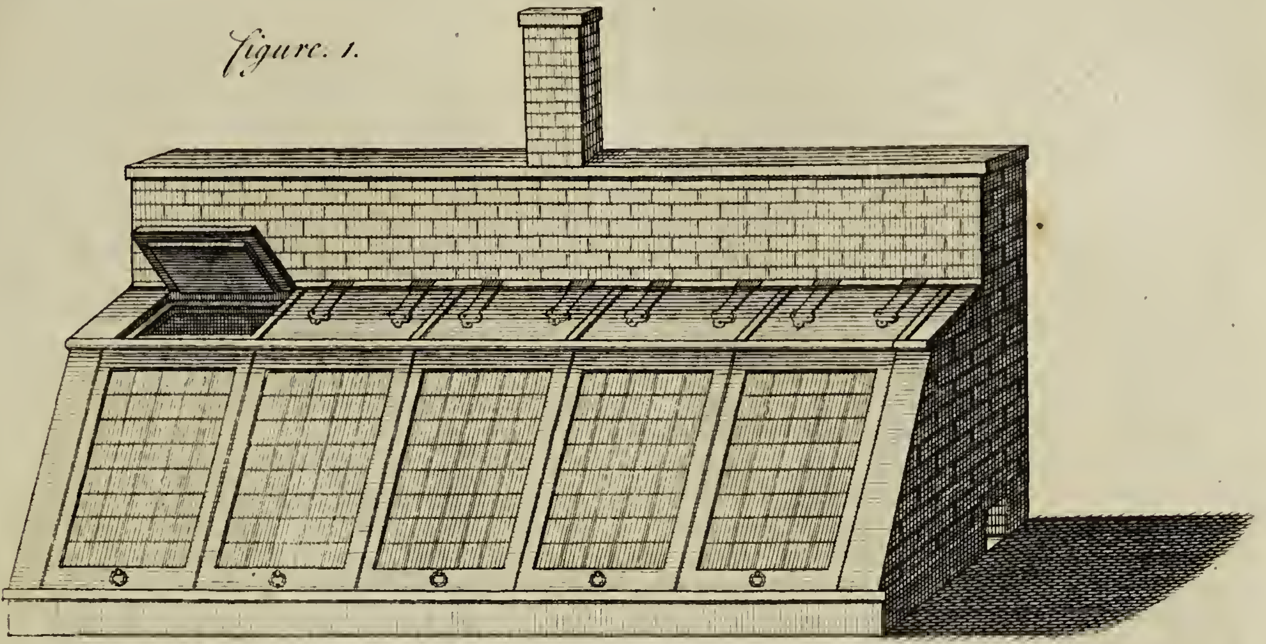


fig. 4.

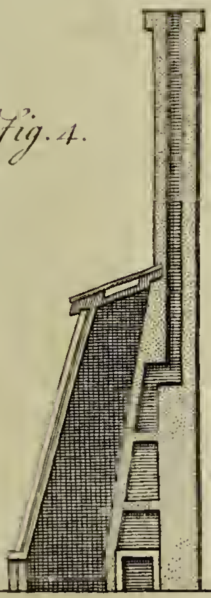


fig. 2.

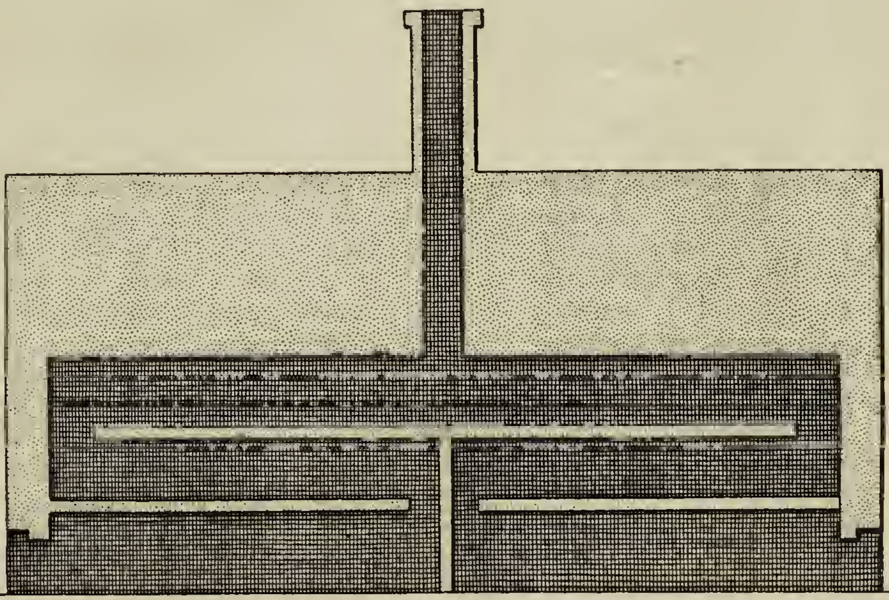


fig. 5.

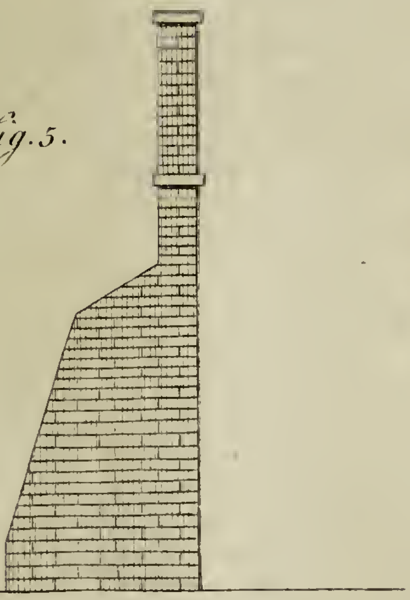
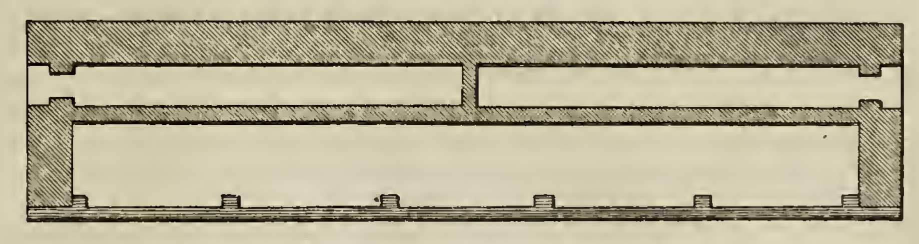
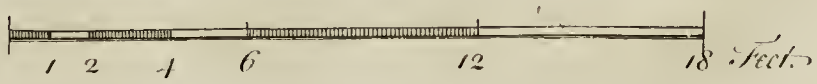
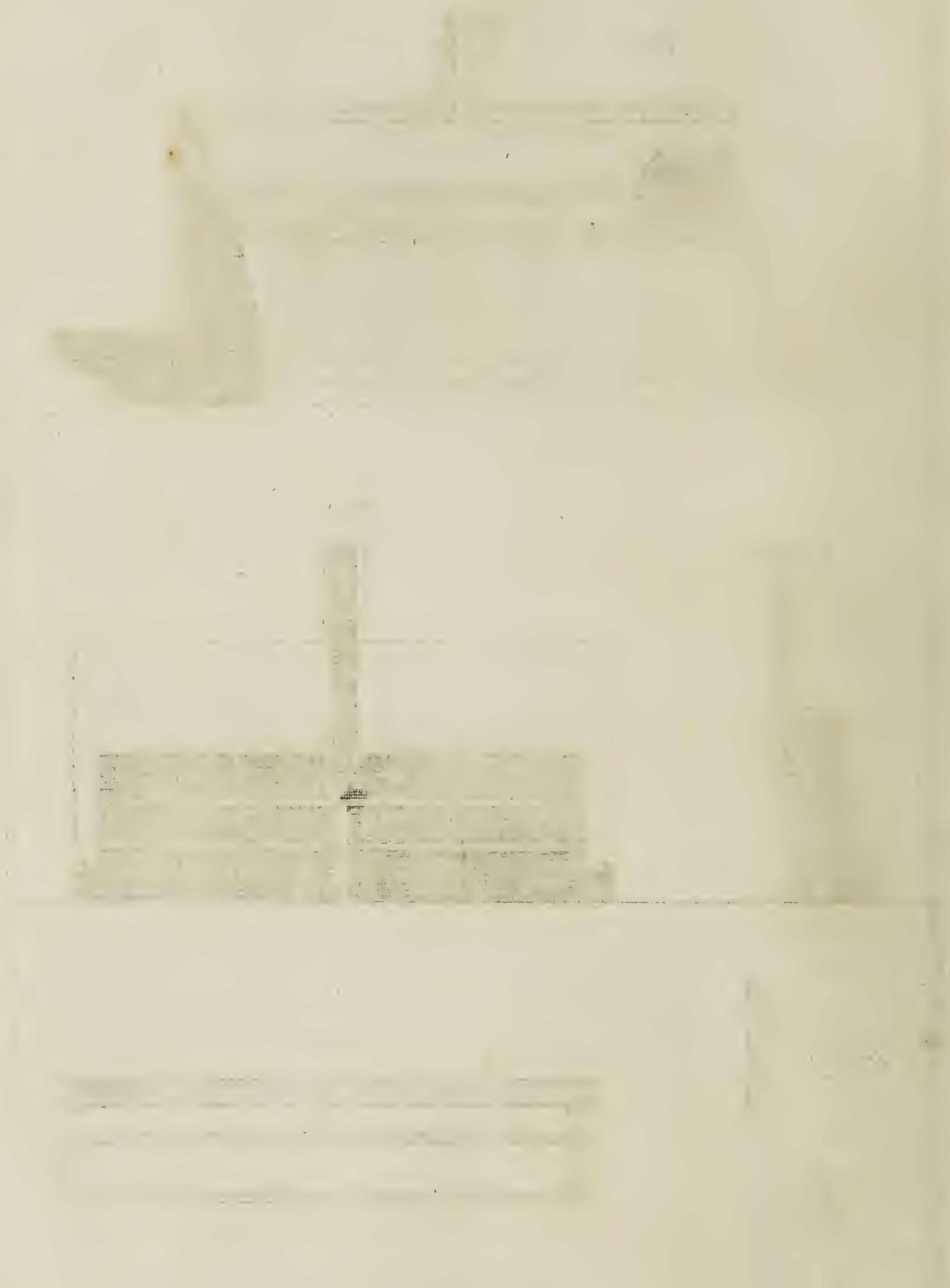


fig. 3.





Engraved for Dicks's Gardiner's Dictionary.



and require no other culture than to be thinned and kept clear from weeds. The ſixth ſort propagates itſelf very faſt by its trailing branches which put out roots from their joints, and render any other method of culture needleſs. It delights in a moiſt cool ſituation.

Hore HOUND. See HORE-*Hound.*

HOUSELEEK, *Sempervivum*, a genus of plants ranged by Linnæus among the *dodecandria polygamia*, and of which there are ſeven ſpecies. 1. Houſeleek with a ſmooth, tree-like, branching ſtalk, or Tree Houſeleek. 2. Houſeleek with ſtalks torn by the rudiments of the leaves, and blunt pointed leaves. 3. Houſeleek with hairy edged leaves, and ſpreading off-ſets, or the common large Houſeleek. 4. Houſeleek with hairy edged leaves, and globular off-ſets. 5. Houſeleek with threads from leaf to leaf, and globular off-ſets. 6. Houſeleek with entire leaves, and ſpreading off-ſets. 7. Houſeleek with leaves, whoſe borders are indented like a ſaw, and ſpreading off-ſets.

The firſt ſpecies grows naturally at the Cape of Good Hope, and in Portugal. It has a thick fibrous root. The main ſtem riſes eight or ten feet high, and is of a pale brown, ſoft, and divided into many ſtraggling and irregular branches. The leaves grow in very beautiful regular and round ſeries at the extremities of all the branches; they are oblong, ſhaped ſomewhat like a tongue, and of a fine freſh green. The flowers are ſmall, but numerous; they are of a pale yellow, and of a ſtarry form, and ſtand upon divided ſlender branches. Each flower has its little cup broke at the edge into twelve ſegments: the petals are alſo twelve, they are oblong, and pointed; the filaments are twelve naturally, but they ſometimes much exceed that number; and the ſtyles from the rudiment of the fruit are alſo twelve.

The ſecond ſpecies is a native of the Canary iſlands. It ſeldom riſes high unleſs the plants are drawn up by tender management. The ſtalk is thick and rugged chiefly occaſioned by the veſtiges of the decayed leaves; it riſes about a foot and a half high, ſupporting at the top one very large crown of leaves, diſpoſed circularly like a full-blown double Roſe. The leaves are large, ending in obtuſe points, a little incurved, ſucculent, ſoft to the touch, and pliable. The flower ſtalk comes out from the centre, and riſes two or three feet high, branching out from the bottom, ſo as to form a regular pyramid of flowers, which are of an herbaceous colour. They are ſucceeded by horned capſules, filled with ſmall ſeeds, which ripen late in autumn or winter, and then the plant dies.

The third ſpecies is the common Houſeleek, which is found growing on the tops of houſes and walls in every part of England. It has many thick ſucculent leaves ſet together in a round form, they are convex on their outſide and plain within, ſhort pointed, and their borders ſet with ſhort fine hairs. The leaves ſpread open, and lie cloſe to the earth, ſending out on every ſide off-ſets of the ſame form. From the centre of theſe heads riſe the flower ſtalk, which is about a foot high, ſucculent and round, of a reddiſh colour, with a few narrow leaves at the bottom: the upper part of the ſtalk divides into two or three parts, each ſuſtaining a ſpike of reflexed flowers, compoſed of ſeveral petals, which ſpread open, ending in acute points, and of a red colour, in the centre is ſituated the germen, which are placed circularly, and after the petals are fallen off, they ſwell and become horned capſules, filled with ſmall ſeeds.

The fourth ſpecies is a native of the northern parts of Europe. The leaves of this ſort are much narrower, and the heads are furniſhed with a greater number of leaves than thoſe of the former, which grow more compact, and are cloſely ſet on their edges with hairs. The off-ſets of this are globular, their leaves turning inward at the top, and lie cloſe over each other; theſe are thrown off from between the larger heads, and falling on the ground take root, whereby it propagates very faſt. The flower ſtalks of this are ſmaller than thoſe of the former, and the flowers are of a paler colour.

The fifth ſpecies grows naturally upon the Alps and Helvetian mountains. This has ſhort narrow leaves, grey, ſharp-pointed, and have ſlender white threads croſſing from one to the other. The flower ſtalks riſe about ſix inches, are ſucculent, round, with awl-ſhaped ſucculent leaves, placed alternately; the upper part of the ſtalk divides into two or three branches, upon each of which is a ſingle row of flowers ranged on one ſide above each other, compoſed of eight ſpear-ſhaped petals of a bright red colour, with a deep line running longitudinally in the middle; theſe ſpread in form of a ſtar, and in the centre is ſituated the germen, of an herbaceous colour, ſurrounded by ſixteen purple ſtamina, which are erect, and terminated by yellow ſummits.

The ſixth ſpecies grows naturally upon the Helvetian mountains. This greatly reſembles the third, but the leaves are ſmaller and have no indentures on their edges; the off-ſets ſpread out from the ſides of the older heads, and their leaves are more expanded. From the centre of the heads riſe the flower ſtalks, which are nine or ten inches high; the upper part is divided into three or four branches, on which are placed the flowers; they are of a deep red, compoſed of twelve pointed petals, in form of a ſtar.

The ſeventh ſpecies is a native of the Cape of Good Hope. It is a very low plant, whoſe heads ſpread cloſe on the ground, and are much ſmaller than thoſe of the common Houſeleek. The leaves have white edges, indented like the teeth of a ſaw. The flowers are white and ſmall, ſo make but little appearance.

Culture of the HOUSELEEK.

The firſt ſpecies is propagated by cuttings, which ſhould be planted in pots, and placed in a ſhady ſituation where they will eaſily take root. They muſt have but little wet, and ſhould be protected from froſt and wet in the winter.

The ſecond ſpecies is propagated by ſeeds, which ſhould be ſown ſoon after they are ripe, in pots filled with light ſandy earth, and placed under a common frame, where they may remain till the ſpring, when they ſhould be removed where they may have the morning ſun only. In dry weather they muſt be gently watered, and always kept clean from weeds. When they have acquired ſtrength, they muſt be tranſplanted into pots filled with light loamy earth, and placed in the ſhade till they have taken new root. In the ſummer time, let them be placed with other hardy ſucculent plants, in a ſhady ſituation, and in winter put in a frame, where they may be protected from hard froſt, and enjoy the free air in mild weather.

The third, fourth, fifth, and ſixth ſpecies are perennial plants, and extremely hardy; they are propagated by off-ſets, and ſucceed beſt in a dry ſoil.

The ſeventh ſpecies is alſo propagated by off-ſets which muſt be planted in pots, and ſheltered from the froſt in winter; and in ſummer may be placed abroad with other hardy ſucculent plants.

Leſſer HOUSELEEK, *Sedum*, a genus of plants ranged by Linnæus among the *decandria pentagynia*, and of which there are a great number of ſpecies, comprehending ſeveral ſorts of Stone crop, and Orpine, moſt of which are natives of England.

Culture of the Leſſer HOUSELEEK, *or* STONE CROP, *and the* ORPINE.

The different ſorts of Stone crop may be propagated by planting their trailing ſtalks, either in ſpring or ſummer, and they will thrive much better upon rocks, old buildings or walls, than the ground.

If the cuttings or roots of the perennial ſorts are planted in ſoft mud, laid upon walls or buildings, they will ſoon ſpread into every joint or crevice, and will cover the whole place: and if the ſeeds of the annual ſorts, which grow naturally in dry places, are ſown ſoon after they are ripe, on the tops of walls the plants will come up without any farther care.

The ſeveral ſorts of Orpine may be propagated by cuttings, during any of the ſummer months, or by parting their roots, either in ſpring or autumn: they ſhould have a dry ſoil and a ſhady ſituation.

HYACINTH, *Hyacinthus*, a genus of plants, ranged by Linnæus among the *hexandria monogynia*, and of which there are a great many ſpecies; among theſe the eight following are the moſt beautiful. 1. Hyacinth, with the flowers alternate, and a little drooping; or the early Blue Starry Hyacinth. 2. Hyacinth, with irregular flowers, divided into ſix parts. 3. Campanulated Hyacinth, with the flowers cylindric at the baſe, and lightly divided at the edge into ſix ſegments. 4. Hyacinth, with a cluſtered conic tuft of flowers; or Peruvian Hyacinth. 5. Hyacinth, with funnel-ſhaped flowers, lightly divided into ſix parts at the rim, and ſwoln at the baſe. 6. Funnel-flowered Hyacinth, with the flowers ſwoln at the baſe, and lightly cut at the edge into ſix ſegments. 7. Hyacinth, with a cluſtered and rounded head of flowers; or Grey Starry Hyacinth. 8. Scaly-rooted Hyacinth; or autumnal Starry Hyacinth.

The root of the firſt ſpecies is a large bulb, roundiſh, white, fleſhy, and full of thick, mawkiſh juice. The leaves are long and narrow, pointed at the extremity, and of a deep and elegant green. The flowering ſtalk riſes to eight or ten inches high, and is round, but a little ridged, juicy, and tender: of a whitiſh green at the top, but towards the baſe purpliſh. The flowers are numerous, and of a conſummate beauty; they ſtand in a handſome ſpike: they are placed on the ſlender foot-ſtalks, and their weight in warmer ſeaſons makes them droop a little; but it is not ſo with thoſe which are brought to flower, nor much with any. Each flower is compoſed of ſix petals, regular in ſize and ſhape, and naturally full ſpread, open. They are oblong, broadeſt in the middle, and ſharp pointed; they are placed immediately upon the foot-ſtalk, without any cup. The colour is naturally a fine ſky-blue, but it is ſometimes paler, and ſometimes has a glow of the violet purple; in the moſt perfect ſtate of the flower the body of the petals is of this celeſtial blue: and there runs along the midſt of each, a line of bloody purple, which diffuſes itſelf in a more faint tinge on each ſide. In the center of the flower riſe ſix ſhort filaments, of a violet blue, and in the midſt of them a ſingle ſtyle; this is alſo of a violet purple at the top, but toward the bottom whitiſh. The foot-ſtalks of the loweſt flowers are conſiderably long, and uſually they are tinged with a pale crimſon.

The ſecond ſpecies has a round root, white, and full of a ſlimy juice. The leaves which riſe from it are naturally two: they are long, conſiderably broad, undivided at the edges, and obtuſe at the end: they envelope one another at the baſe, and there cheriſh and defend the rudiment of the ſtalk. Their colour is a very beautiful green, and they are ſpotted with a duſky, blackiſh purple. The ſtalk is thick, round, and of a pale green, ſpotted in the manner of the leaves with brown, and toward the baſe a little tinged with purple: it riſes between the two leaves, ſurrounded a great way up by their baſes, and grows to fifteen inches in height. There are no leaves on this, but its top is decorated with a looſe ſpike of flowers; theſe are in the higheſt degree ſingular, as well as beautiful: they ſtand at a moderate diſtance, and they are larger than the generality of the Hyacinth kind. Their colour is a deep yellow, duſky on the outſide, and more bright within; they appear gradually and ſlowly after one another, which is a great recommendation; each is formed of a ſingle petal, divided very deeply and irregularly into ſix ſegments; in the center riſe ſix filaments, and in midſt of theſe is placed a ſingle ſtyle. The ſeed-veſſel that follows each flower is ſhort, thick, and marked with three furrows: it is divided within into three cells, and contains numerous, very minute ſeeds.

The root of the third ſpecies is bulbous and oblong, covered with a brown membrane, full of a ſlimy juice, and hung at the bottom with many fibres. The leaves are long, not very broad, pointed at the end, and of a deep green. The ſtalk is round, upright, naked, and a foot high, purpliſh toward the ground, and of a pale green upwards. The flowers cover a third part of its length, in a kind of ſpike; they have weak foot-ſtalks, on which they hang drooping, and they are large and very beautiful. In their moſt natural ſtate they are of a deep violet blue, with a light tinge of purple. The flower has no cup, but hangs naked from its foot-ſtalk: it is formed of a ſingle petal, cylindric and hollow at the baſe, and at the rim divided into ſix ſegments, which turn outwards. The ſeed-veſſel which follows, is of a roundiſh form, but marked with three furrows, and it contains a few ſeeds of a roundiſh ſhape, in three ſeparate cells.

The fourth ſpecies has a large root, oblong, firm, and weighty, covered with a brown bark, and ſending out, from a prominent baſe, many thick fibres. The leaves are very conſpicuous, though not more than four or five in number: they are ſix or eight inches long, very broad, hollowed, obtuſe, and of a fine green. The ſtalk is thick, juicy, and of a pale green. At the top it forms a large head, by ſending out a multitude of fine ſlender foot-ſtalks; theſe are of a deep purpliſh hue: and as they are longeſt in the lower part of the cluſter, and ſhorter towards the top, the whole tuft is regularly of a conic figure, thick, ſhort, broad at the baſe and pointed. The flowers are extremely elegant in themſelves, and this vaſt tuft of them makes a moſt ſplendid appearance. One terminates each of theſe foot-ſtalks; the ſize is conſiderable, the form ſtarry, and the colour a fine blue; there is a variety of the plant, in which they are white, and ſometimes fleſhy, or tinctured with a pale crimſon: but theſe, though beautiful, are far below the elegant and perfect blue, which is the natural colour. In ſome well cultivated plants there is a glow of purple with the blue, which is extremely beautiful. The various mixture of the red gives the violet tinct to ſome, and to others a true purple: in all theſe colours the plant is of extreme beauty. As the ſhortneſs of the foot-ſtalks at firſt, in the upper part of the cluſter, is owing only to their being not ſo full grown as thoſe below, the continuance of the conic figure of the tuft, depends upon the manner of flowering. The flower is compoſed of ſix petals; theſe are of an oval form, ſharp-pointed, and diſplayed as the rays in a pointed ſtar. It riſes naked from the foot-ſtalk. In the center ſtand ſix filaments, ſmaller upwards, ſhort, and crowned with oblong incumbent buttons. In the midſt of theſe riſes a ſingle ſtyle from the rounded rudiment of a ſeed-veſſel, which when ripened, becomes oval, with three furrows, and contains, in ſo many cells, numerous roundiſh ſeeds.

The fifth ſpecies has a large bulbous root, compoſed of many thick coats, and full of a ſlimy juice. The leaves are oblong, and of a conſiderable breadth: hollowed, obtuſe, of a pale green on the lower part, but deeper towards the end: ſix or ſeven of theſe riſe together from the root, and throw themſelves about in various directions. Among theſe riſes the ſtalk, round, thick, upright, juicy, and ten inches high: it is browniſh in the upper part, but of a paler green near the ground. There are no leaves on it, but from the middle to the top it is very elegantly decorated with flowers. Theſe are hollow, of a bell-like ſhape, divided at the edges into ſix parts, and ſwoln into a kind of roundneſs at the baſe; they hang from the ſtalks by ſhort ſlender foot-ſtalks, of a browniſh green principally, but not entirely on one ſide: and they are of an extremely beautiful blue, and of a very ſweet ſcent; ſometimes there is a mixture of purple with the blue, ſometimes they are white, and ſometimes they are fleſhy: theſe, and numerous other varieties of them, are produced from ſeeds, of which we ſhall ſpeak hereafter; but what is here deſcribed, is the original, or mother plant. The flower is formed of a ſingle petal, and from the baſe there riſe ſix filaments, ſhort, and terminated by convergent buttons: in the center of theſe riſes a ſingle ſtyle, terminated by an obtuſe top. The ſeed-veſſel is of a roundiſh form, marked with three ridges, and contains in three cells a few large roundiſh ſeeds.

The root of the ſixth ſpecies is very large, round, and white, full of juice, and hung with many thick fibres.

The leaves are numerous, broad, and very conſpicuous; they reſemble thoſe of the Lilly: they are of a freſh green, waved at the edges, and often curled or twiſted. The ſtalk is round, firm, fourteen inches high, and upright, except that it bends toward the top with the weight of its numerous large flowers. The lower part of it is variouſly and elegantly clouded and ſpotted with purple: and uſually the bottoms of the leaves are in the ſame manner pointed like the ſtalk of the great Dragons. The flowers are very large, and naturally of a celeſtial blue; they hang in great cluſters from the top down one third of the length of the ſtalk: each has its ſhort foot-ſtalk. In form they reſemble the other Hyacinths, but they are the largeſt of their kind: and by culture their colour will be changed in many degrees; it will grow deeper or paler: there will be a mixture of red in various proportions with the blue, which will make it purple: and it will ſometimes be fleſhy or white. Theſe are all fine colours, and the flower is very elegant in all of them, but in none ſo truly fine as in its pure celeſtial blue, its genuine and natural colour. The flower is formed of one petal, and grows naked to its foot-ſtalk: it is rounded at the baſe, cylindric and tubular in the body, and at the rim it turns up in ſix large and elegant ſegments. Within ſtand ſix ſhort filaments, whoſe buttons converge: and there is in the center of theſe a ſhort ſtyle, with an obtuſe head.

The ſeventh ſpecies has a roundiſh root, it is white, and hung with many fibres at the baſe. The leaves are numerous, and moderately broad, ſtraited, and of a faint green. The ſtalk is round, thick, of a pale green and naked. The flowers are numerous, and they crown the top in a broad tuft. Their colour is a very delicate pearly grey, and the ſmell is very fine. The flowers have no cups. Its body is compoſed of ſix oval petals, which ſtand expanded in the manner of the rays of a ſtar. Within ſtand ſix ſhort filaments, with oblong incumbent buttons; and in their center, from a roundiſh rudiment, riſes a ſimple ſtyle of the length of the filaments, and crowned with a ſingle head.

The root of the eighth ſpecies is large and white, and is compoſed of ſcales in the manner of the Lilly root, but thicker and ſhorter. The leaves are numerous, broad, oblong, obtuſe, and of a ſtrong green; the middle rib is pale, and ſometimes the ends of the leaves are tipped with brown. The ſtalk is round, juicy, and a foot high; there are no leaves on it; the colour is a pale green, tinged toward the bottom with red, and the top is decorated with a great number of flowers. Theſe are large, and of a delicate white, ſometimes tinged a little with a fleſh colour. They have no cup: they riſe naked from their foot-ſtalks, and each is compoſed of ſix petals, which ſtand open. In the center are ſix ſhort filaments, crowned with oblong incumbent buttons, and in the midſt of them a ſingle ſtyle with a ſimple head. This riſes from a roundiſh rudiment of a ſeed-veſſel, which, as it ripens, becomes more oval, and is marked with three furrows. It is formed of three valves, and divided within into three cells, in each of which are contained ſeveral roundiſh ſeeds.

Culture of the HYACINTH.

All the kinds of this beautiful flower may be propagated either by ſowing their ſeeds, or by parting their bulbous roots. The latter is generally practiſed among us, though the former is evidently the beſt way to procure the fineſt varieties of the flowers, and has been always practiſed in Holland. The diſcouragement in this, is the long time the plants take from the ſowing, which is uſually four years before they flower; but then, if they are ſowed every year, after the firſt four years, there is always a yearly ſucceſſion of flowers from ſeed. The ſeed ſhould be carefully ſaved either from ſemi-double, or the fineſt ſingle flowers, and ſown on a freſh, light, and ſomewhat ſandy ſoil, in ſhallow pots or boxes, covering them with half an inch of the ſame earth. This ſhould be done in the beginning of Auguſt, and the pots ſhould be placed where they may have the morning ſun till the middle of September; and towards the end of October, be put under a common hot-bed frame. In February the young plants will appear above the ground, and muſt be carefully ſcreened from froſts: but they muſt not be cloſe covered, except at nights. In March they muſt be taken out of the frames, and ſet in a warm place; and when the weather is dry, they muſt be gently watered at times, and always kept clear from weeds. About the latter end of April, or beginning of May, they muſt be removed into a cooler ſituation, as the heat of the ſun would then be too much for them. After their blades are decayed, they muſt have no more watering; but toward the latter end of Auguſt, about half an inch of freſh earth ſhould be ſifted over the pots; after this they muſt be preſerved and managed as the former ſeaſon: and in the Auguſt following a bed of light, rich, ſandy ſoil, ſhould be prepared; then the earth is to be taken out of the pots or boxes: and the roots, which will at this time be about the bigneſs of a quill, muſt be ſeparated, and carefully placed upon the bed, at two or three inches aſunder. They are to be ſet with bottom part downwards, and covered two inches thick, with the ſame fine earth ſifted over them. Theſe beds muſt be arched over, and in froſty weather covered with mats. In ſpring, if the weather proves dry, they muſt be watered ſparingly. In ſummer they muſt be kept very clear from weeds, and in autumn have an inch more of light earth ſtrewed over them. This management muſt be continued till they flower, which is uſually not till four or five years after they were ſown. When they are in flower, the fineſt ſort ſhould be marked with a ſtick, that they may be taken up and planted ſeparate. When the green leaves of theſe plants begin to decay, their root muſt be taken up, and the earth of the bed being raiſed into a ridge, to ſhoot off the moiſture, they ſhould be laid into the earth again, in an horizontal poſition, leaving the green leaves hanging down from the roots, to prevent their moiſture from running into the roots, which often rots them. When the leaves are quite dried off, the roots are to be taken up and cleared of filth, and laid up in boxes till September, which is the time for planting them again. The proper ſoil for planting theſe in is this: take one half freſh earth from a common or paſture, which is of a ſandy loam: this ſhould not be got beyond nine inches deep; to this add a fourth part of rotten cow-dung. This ſhould be mixed a long while before it is uſed, and often turned: and ſhould be ſpread ten inches deep on the beds, with a little rotten cow-dung, or old tanners bark, at the bottom. Theſe beds ſhould be raiſed from three to ſix inches above the ſurface of the earth, and be a little riſing or rounded, in the middle. When the flowers are about to blow, the ſtalks ſhould be faſtened by a loop of wire to a ſmall ſtick, to prevent their bending down, and they muſt be ſheltered from the great heat of the ſun in the middle of the day, by which means they will continue in flower a month or longer.

Grape HYACINTH. See GRAPE *Hyacinth.*

HYDRANGEA, a genus of plants, for which there is no Engliſh name, and only one ſpecies.

This plant is a native of North America. It has a ſpreading fibrous root, from which are ſent up many ſoft, pithy, ligneous ſtalks, which riſe about three feet high, with two oblong, heart-ſhaped leaves placed oppoſite, at each joint; they are three inches long, and two broad near their baſe, ſawed on their edges, and have many veins running from the middle upward to their borders. The flowers crown the top of the ſtalks, in form of a corymbus; they are white, and compoſed of five petals, with ten ſtamina ſurrounding the ſtyle.

Culture of the HYDRANGEA.

It is eaſily propagated by parting of the roots: the beſt time for doing this is the latter end of October, at which ſeaſon they may alſo be tranſplanted. The plants ſhould have a moiſt ſoil, for they grow naturally in marſhy places; they require no other culture than to be kept clean from weeds, and to have the ground dug about them every winter. The roots are perennial, and if in very ſevere froſt the ſtalks are killed, they will put out new ones the following ſpring.

HYGROMETER, or HYGROSCOPE, a machine or inſtrument for meaſuring the degrees of dryneſs or moiſture of the air, or atmoſphere. There are divers ſorts of hygrometers, for whatever body either ſwells or ſhrinks, by dryneſs or moiſture, is capable of being formed into an hygrometer. It is found that moiſture ſenſibly ſhrotens the length of cords and ſtrings. Therefore to make an hygrometer, no more is neceſſary than to ſuſpend a catgut a yard in length, having a plumbet, or piece of lead, with an index or pointer affixed to the lower end of it, by which means the catgut will twiſt or untwiſt as the air dries or moiſtens, and ſhorten or lengthen, ſo as to raiſe or ſink the plumbet with the index; and this index will point the degree ſought for. The degrees may be marked upon a open braſs ſcrew within, with which the plumbet and index has its motion. The following hygrometer is recommended in the Philoſophical Tranſactions, No. 479. It conſiſts of a thin piece of ſponge, ſo cut as to contain as large a ſuperficies as poſſible. This hangs by a fine thread of ſilk upon the beam of a balance, and is exactly balanced on the other ſide by another thread of ſilk, ſtrung with the ſmalleſt lead ſhot, at equal diſtances, and ſo adjuſted as to cauſe an index to point at the middle of a graduated arch, when the air is in a middle ſtate, between the greateſt moiſture and the greateſt dryneſs. Under this ſilk ſo ſtrung with ſhot, is placed a little table or ſhelf for that part of the ſilk and ſhot which is not ſuſpended to reſt upon. When the moiſture imbibed by the ſponge increaſes its weight, it will raiſe the index, and alſo part of the ſhot, from the table, and vice verſa when the air is dry.

HYPECOUM, a genus of plants for which we have no Engliſh name; there are three ſpecies of it. 1. Hypecoum with compreſſed jointed pods bent inward. 2. Hypecoum with taper, cylindrical, nodding pods. 3. Hypecoum with taper, erect, wreathed pods.

The firſt ſpecies has many winged pointed leaves, of a greyiſh colour, which ſpread near the ground. The ſtalks are ſlender and lie proſtrate, they are naked at the bottom, but at the top are placed two or three ſmall leaves of the ſame ſhape and colour with thoſe below: between theſe leaves are ſituated the foot-ſtalks of the flowers each ſuſtaining one yellow flower with four petals, and a pointal ſtretched out beyond the petals, which afterward turns to a jointed compreſſed pod about three inches long, which bends inward like a bow, having one roundiſh compreſſed ſeed in each joint.

The ſecond ſpecies has ſlender ſtalks which ſtand more erect, the ſegments of the leaves are longer, and much narrower than thoſe of the firſt: the flowers are ſmaller, and ſituated at the diviſions of the branches, they are ſucceeded by narrow taper pods hanging downwards.

The third ſpecies has greatly the appearance of the ſecond both in leaf and flower, but the pods grow erect, and are wreathed and twiſted about.

Culture of the HYPECOUM.

Theſe plants are all annual; their ſeeds ſhould be ſown in the autumn on a bed of freſh earth where they are to remain, for they ſeldom ſucceed when they are tranſplanted.

When the plants come up, they ſhould be carefully cleared from weeds, and where they are too cloſe they muſt be thinned, leaving them about ſix or eight inches apart; after this they will require no other culture than to be conſtantly kept clear from weeds.

HYPOCIST, a ſpecies of Aſarabacca. See the article ASARABACCA.

HYSSOP, *Hyſſopus*, a genus of plants ranged by Linnæus among the *didynamia gymnoſpermia*, and of which there are three ſpecies. 1. Hyſſop with fruitful ſpikes, or the common Hyſſop. 2. Hyſſop with tranſverſe petals, and the lower ſtamina ſhorter than the petal. 3. Hyſſop with an acute ſquare ſtalk.

The firſt and ſecond ſpecies are perennial plants, and the third biennial. The firſt is a native of the Levant, the ſecond grows naturally in Siberia, and the third in Canada. Theſe plants when not in flower may be known by their long narrow leaves, and peculiar agreeable ſcent.

Culture of the HYSSOP.

All the ſpecies are propagated either by ſeeds, or cuttings. The ſeeds muſt be ſown in March, on beds of a light ſandy ſoil, and when the plants are come up, they muſt be cleared to a foot aſunder every way; or if they are intended to remain many years, they ſhould be left at two feet diſtance, for they grow quick, and ſpread very much. They thrive beſt on a poor ſoil, and will bear the ſeverities of the winter much better than on a richer.

When they are propagated by cuttings, it muſt be done in April or May, when they ſhould be planted in a border where they may be defended from the violent heat of the ſun, and being frequently watered, they will take root in two months, after which they may be tranſplanted to the places where they are to remain, managing them as the ſeedling plants.

Hedge HYSSOP, *Gratiola*, a genus of plants of which there are three ſpecies. 1. Hedge Hyſſop with flowers ſtanding on footſtalks, and ſpear-ſhaped ſawed leaves. 2. Hedge Hyſſop with obtuſe indented leaves. 3. Hedge Hyſſop with flowers ſitting cloſe to the branches.

The firſt ſpecies grows naturally on the Alps, and other mountainous parts of Europe. The ſecond is a native of North America, and the third of Carthagena.

Culture of the Hedge HYSSOP.

It is eaſily propagated by parting the roots in autumn, when the ſtalks decay; the plants ſhould have a moiſt ſoil and a ſhady ſituation, in which they will thrive extremely well; but in dry ground they often decay in ſummer, unleſs they are plentifully watered.

J.

JACK-IN-A-BOX. See HERNANDIA.

JACOB's LADDER, or Greek Valerian. See the article GREEK VALERIAN.

JALAP. See MARVEL OF PERU.

JANUARY, the firſt month of the year.

In the *Flower-garden*, take the advantage of a fine day ſome time this month, and plant ſome Ranunculuſes, and other ſpring-flower roots, for when thoſe put into the ground the preceding autumn are decayed, theſe will come in ſeaſon, and continue to the time of the ſummer flowers. As many of the hardy ſhrubs muſt be ſown in the beginning of the ſucceeding month, preparation muſt be made now. If the weather is froſty, nothing more is to be done, but overlooking the ground and defending the crops, by ſtrewing peaſe-ſtraw over ſome, and drawing mats or cloths over the hoops of the others. About the beginning of this month the Auriculas are to be prepared for flowering well, by freſh earthing. Look over the beds of thoſe Tulip roots planted in autumn; ſuch as are come up ſhould be covered with mats and drawn over the hoops placed upon the beds, as often as is neceſſary. A covering of peaſe-ſtraw ſhould be laid upon the beds of Carnation and other choice flower-buds, if the ſeaſon is hard, but thoſe coverings ſhould be removed in mild weather; and, as toward the end of this month the froſt may be more dangerous than ever to ſeedling-plants, great care muſt be taken to preſerve them.

In the *Kitchen-garden*, look over the Cauliflower plants under glaſſes. Lay ſome ſtraw upon the muſh room beds, to preſerve them from froſt and wet, and change it once in three days. Plant Endive for ſeeds:

let all tender crops be defended from cold and wet, by mats on hoops, or by peaſe-ſtraw. Let Lettuce-ſeeds of the common ſort be ſown in ſome well ſheltered place, and let a ſmall crop of Peas and another of Beans be now ſown, and let a bed be prepared for Carrot-ſeed. Lay in another crop of Endive for blanching. Chuſe a mild and moiſt day to make a plantation of early Cabbage, in a rich and dry ſoil. About the end of the month, let hot-beds be prepared for raiſing early Cucumbers and Melons. Search ſhould be made after caterpillars and ſnails.

In the *Seminary*, let the beds intended for planting in ſpring have their laſt turning, and let the whole be thrown up in a new ridge. Let the young trees of the hardy kind be pruned and trimmed up, and let their roots be defended by covering the ground with peaſe-haulm. Let the ground be dug between ſuch ſhrubs and trees as are well eſtabliſhed in their growth, and all roots of perennial weeds carefully picked up. The young trees muſt be examined to ſee whether they be cropped or barked; if any ſuch miſchief appear, look well to the fences, and lay traps about the ſeed-beds; repeat the ſowing of flowers whoſe ſeeds will grow at this period.

Fruit-garden. About the beginning of this month is the ſeaſon for providing an early crop of Strawberries. The Apple-tree, Pear-tree, and the ſmall ſhrubs of Gooſberries and Currants may now be pruned. Let the young Mulberry-trees be now examined; let there be no dead wood or decayed branches left. Clear the fruit-trees from moſs. About the end of this month the buſineſs of pruning may be continued. The gardener ſhould now think of the great affair of grafting.

In the *Green-houſe*, if the middle of the days be mild, give the plants air. But if the froſt be ſevere it muſt be kept cloſe; and if the froſt continues hard, let mats be placed before all the glaſſes; and if there is a flue under the green-houſe, there muſt be a little fire uſed to keep the air in a gentle warmth; and where there is no flue, let ſome clear fire be made in a portable furnace, or ſeveral wax candles be kept burning, while the windows are cloſe; let the waterings be very ſparing: all the dead leaves muſt be taken off and carried out of the green-houſe, and wherever there appears any mouldineſs let it be carefully and perfectly cleared off with a ſponge dipped in warm water. The ſame care muſt be taken in the caſe of inſects, only inſtead of warm water alone, let the ſponge be wetted in a ſtrong and warm decoction of wood ſoot, and tobacco.

In the *Stove* the ſame kind of care muſt be taken but in a greater degree. If the heat is not carefully kept up, the trouble will be all in vain. Care muſt be taken to carry all the dead leaves out of the houſe, and let ſuch plants as require water have it regularly, but in ſmall quantities. About the end of this month it will be proper to repair the bark-bed in the ſtove: and a fine day ſhould be choſen for that purpoſe: obſerve to let the heat of the air be carefully kept up by the thermometer.

JASMINE, or JESSAMINE, *Jaſminum*, a genus of plants ranged by Linnæus among the *diandria monogynia*, and of which there are ſeven ſpecies. 1. Jaſmine with winged leaves placed oppoſite, or the common White Jaſmine. 2. Azorian Jaſmine with trifoliate leaves placed oppoſite, commonly called Ivy-leaved Jaſmine. 3. Jaſmine with trifoliate and ſingle leaves placed alternate, and angular branches, or the common Yellow Jaſmine. 4. Jaſmine with alternate, trifoliate, winged leaves, and angular branches, or the Italian Yellow Jaſmine. 5. Jaſmine with alternate, trifoliate, winged leaves, and taper branches, or the ſweet-ſcented Yellow Indian Jaſmine. 6. Jaſmine with ſpear-ſhaped leaves placed oppoſite, entire acute empalements, and one flower upon each footſtalk. 7. Jaſmine with winged leaves placed oppoſite, whoſe lobes are ſhorter and obtuſe; or Catalonian Jaſmine.

The firſt ſpecies, which is the common White Jaſmine, is a native of ſeveral parts of India. It has long been inured to our climate, where it thrives and flowers extremely well, but never produces any fruit here.

The ſecond ſpecies is a ſpreading ſhrub, not very regular in growth. The trunk is covered with a pale grey bark; the young ſhoots are ſoft, tender, flexible, and green. The leaves are placed regularly in threes, and theſe again in pairs upon the ſtalks: one foot-ſtalk ſupports three leaves, and theſe foot-ſtalks riſe oppoſite to one another. The ſingle leaves are large, of a deep green, and an oval ſhape: they are broadeſt at the baſe, and ſmaller at the point. The flowers are diſpoſed in tufts at the extremities of the branches, each foot-ſtalk ſplitting naturally, and ſupporting two of them. The whole tuft when in full glory is compoſed of eight or nine pair of theſe flowers. Each flower is large and white, and much reſembles that of the common Jaſmine, which it exceeds greatly in fragrance.

The third ſpecies or common Yellow Jaſmine is very ſeldom cultivated in gardens, for the flowers having no ſcent, are little eſteemed.

The fourth ſpecies, or the Italian Yellow Jaſmine, has larger flowers than the former, but they have alſo very little ſcent.

The fifth ſpecies is a native of India. It riſes with an upright woody ſtalk eight or ten feet high, covered with a brown bark, ſending out ſeveral ſtrong branches which want no ſupport. The leaves are trifoliate, oval, entire, and of a lucid green which continues all the year. The flowers are ſituated at the ends of the ſhoots in bunches of a bright yellow, and have a moſt delicate odour. They appear in July, Auguſt, September, and October; and ſometimes continue till the end of November, they are frequently ſucceeded by oblong oval berries, which turn black when ripe, and have each two ſeeds.

The ſixth ſpecies has a large woody ſtem, ſending out many branches, which are at firſt green, but afterwards the bark becomes grey, and is ſmooth; the branches come out by pairs, and have ſhort joints; the leaves, which are of a thick conſiſtence, are alſo ſet by pairs cloſe to the branches: they are five inches long, and two and a half broad in the middle, leſſening to both ends, terminating in a point of a lucid green, and having ſeveral tranſverſe veins from the mid-rib to the borders, which are entire. The flowers are produced at the ends of the branches, ſitting cloſe to the leaves, one upon each foot-ſtalk; they have a tubulous empalement, with five corners or angles, cut deep at the brim, into five long, narrow ſegments, ending in very acute points; the flower has but one petal: for though it is cut into many deep ſegments at the top, yet theſe are all joined in one tube below: ſome of theſe flowers are much more double than others, having three or four orders of petals; when fully blown they are as large as a middling Roſe, and ſome of them are as double as a damaſk Roſe, having a very delicate odour, not unlike that of the White Narciſſus. The ſeaſon for its flowering is in July and Auguſt.

The ſeventh ſpecies is a native of India. It has much ſtronger branches than the common white ſort. The leaves are winged, and compoſed of three pair of ſhort obtuſe lobes, terminated by an odd one, ending in obtuſe points; theſe lobes are placed cloſer than thoſe of the common Jaſmine, and are of a lighter green. The flowers appear from the wings of the ſtalks, ſtanding on long foot-ſtalks, each ſuſtaining three or four flowers, which are of a blueiſh red on their outſide, but white within.

Culture of the JASMINE.

The firſt ſpecies may be propagated by laying down the branches, which will take root in one year, and may then be cut from the old plant, and planted where they are deſigned to remain.

It may alſo be propagated by cuttings, which ſhould be planted early in the autumn; and if the winter ſhould prove ſevere, the ſurface of the ground between them muſt be covered with tan, ſea-weed, aſhes, or ſaw-duſt, which will prevent the froſt from injuring their roots.

When theſe plants are removed, they ſhould be planted where they are deſigned to remain, which ſhould be either againſt a wall, pale, or ſome other fence, where the flexible branches may be ſupported. Theſe plants ſhould be permitted to grow rude in the ſummer, otherwiſe there will be no flowers; but after they are paſt, the luxuriant ſhoots ſhould be pruned off, and the others nailed to the ſupport.

There are two varieties of this ſpecies, with variegated leaves, one with white and the other with yellow ſtripes, but the latter is the moſt common; theſe are propagated by budding them on the plain Jaſmine, and it often happens, that when the buds do not take, yet they will communicate their gilded miaſma to the plants; ſo that in a ſhort time after, many of the branches both above and below the places where the buds have been inſerted, have been thoroughly tinctured.

Both theſe varieties ſhould be planted in a warm ſituation, eſpecially the white ſtriped, for they are much more tender than the plain, and are very ſubject to be deſtroyed by froſts: therefore the white ſtriped ſhould be planted to a ſouth or ſouth-weſt aſpect, and in very ſevere winters their branches ſhould be covered with mats or ſtraw, to prevent their being killed; the yellow ſtriped is not ſo tender, ſo may be planted againſt walls to eaſt or weſt aſpects: but theſe plants with variegated leaves, are not ſo much in eſteem as formerly.

The beſt way of propagating the ſecond ſpecies, is by layers; chuſe for the mother plant one that is vigorous and healthy: and having fixed upon the branches that are fit for laying, raiſe three treſſels or frames of any kind under them, able to bear pots of earth: then mix together three buſhels of fine rich mould, taken from under the turf in a fertile meadow: add to it one buſhel of earth from the bottom of a wood-pile, and half a buſhel of old cow-dung: blend all theſe well together; and when they have lain ſome time, fill with this compoſt three large pots; ſet each upon one of the treſſels, and let it be of ſuch a height, that the branches intended to be laid, will come down to it without much force; bring down the branch to the firſt pot, open the earth ſix inches deep, and lay it in; obſerve where the part to be covered is, and then let it riſe again: tie a piece of wire juſt above, and cut with a knife three long ſlits, in the part that will lie covered; after this, pierce half a dozen holes through, and then wet it with ſtrong brine: then lay it in the open part of the earth, and faſten it ſecurely with pegs, or by tying: cover it up five inches with the earth, and give it a gentle watering.

The beſt ſeaſon for laying it is in the beginning of Auguſt, for this is an evergreen: and this is a proper time for them; it is thus to be managed with every branch that is laid, and the top of each ſhould remain about eight inches out of the ground: the earth muſt be gently watered, and the next ſeaſon the branches are to be cut off from the old plant, and the whole earth of the pot ſhaken out in a lump with the layer: it is then to be placed in another pot, with more earth of the ſame kind, and the ſhoot is to be kept in the middle of the pot. It will thus require no more care than is beſtowed on common plants of the ſame kind, and will grow to a handſome ſhrub; theſe pots muſt be ſet out in the latter end of May, and taken into the green-houſe in Auguſt: and every year the earth muſt be cleared away to a good depth about the roots, and freſh put in the place of it: with this management they will produce very large bunches of fine flowers, and of great ſweetneſs. A layer or two ſhould be placed under a ſouth wall in the natural earth, at the ſame time that others are ſet in pots; theſe will ſtand ſome winters, though very ſevere ones will deſtroy them: but ſo long as they bear the expoſure, they will grow more luxuriantly, and flower in a much finer manner than ſuch as are houſed.

The third ſpecies is eaſily propagated by ſuckers or layers.

The fourth ſpecies may be propagated by laying down the tender branches, as was directed for the common white ſort: or by inoculating or inarching it upon the common Yellow Jaſmine, the latter of which is preferable, by making the plants hardier than thoſe which are obtained from layers.

The fifth ſort is propagated by laying down the tender branches; the ſhoots ſhould be laid down in March, and if they are ſlit at the joint, as it is practiſed in laying of Carnations, it will promote their rooting; when the weather is dry, theſe layers muſt be frequently watered, which if carefully attended to, the plants will be rooted by the ſucceeding ſpring fit to be tranſplanted, when they muſt be planted in pots filled with light earth, and managed as was before directed for the ſeedling plants. This ſort is frequently propagated, by inarching the young ſhoots into ſtocks of the common Yellow Jaſmine, but the plants ſo raiſed do not grow ſo ſtrong as thoſe which are upon their own ſtock; beſides, the common Yellow Jaſmine is very apt to ſend out a great number of ſuckers from the root, which renders the plant unſightly; and if theſe ſuckers are not conſtantly taken off as they are produced, they will rob the plant of their nouriſhment. The cuttings of this plant will alſo take root, if they are planted in pots in the ſpring, and plunged into a moderate hot-bed, covering them cloſe with handſome glaſſes; when theſe are well rooted, they may be tranſplanted into ſeparate pots, and treated as the layers. The ſixth ſort is eaſily propagated by cuttings, which, if taken from the young branches, and planted in pots filled with a loamy ſoil, and plunged into a moderate hot-bed, covering them cloſe down with hand-glaſſes, will ſoon put out roots: then they may be tranſplanted each into a ſeparate ſmall pot, filled with the like loamy earth, and plunged again into the hot-bed, to forward their putting out new roots. When theſe young plants have obtained ſtrength, they may be treated hardily.

The ſeventh ſpecies is propagated by inoculating or inarching it upon the common White Jaſmine, on which it ſhakes very well, and is rendered hardier than thoſe which are upon their own ſtocks. Thoſe of this kind are brought over from Italy every ſpring, generally tied up in ſmall bunches, containing four plants; their roots are wrapped about with moſs to preſerve them from drying, which, if it happens that the ſhrip has a long paſſage, will often occaſion them to puſh out ſtrong ſhoots from their roots, which muſt always be taken off before they are planted, otherwiſe they will exhauſt the whole nouriſhment of the plant, and deſtroy the graft. In making choice of theſe plants, you ſhould carefully obſerve if their grafts are alive and in good health: for if they are brown and ſhrunk they will not puſh out, ſo that there will be only the ſtock left, which is of the common ſort.

When you receive the plants, you muſt clear the roots of the moſs, and all decayed branches ſhould be taken off; then place their roots into a pot or tub of water, which ſhould be ſet in the green-houſe, or ſome other room where it may be ſcreened from the cold: in this ſituation they may continue two days, after which you muſt prune off all the dry roots, and cut down the branches within four inches of the place where they are grafted, and plant them in pots filled with freſh light earth; then plunge the pots into a moderate hot-bed of tanners bark, obſerving to water and ſhade them, as the heat of the ſeaſon may require. In about three weeks or a months time they will begin to ſhoot, when you muſt carefully rub off all ſuch as are produced from the ſtock below the graft; they muſt now have a great ſhare of air to ſtrengthen them, and by degrees they muſt be hardened to endure the open air, into which they ſhould be removed in June, placing them in a warm ſituation the firſt ſummer; for if they are too much expoſed to the winds, they will make but an indifferent progreſs, being rendered tender by the hot-bed. If the ſummer proves warm, and the trees have ſucceeded well, they will produce ſome flowers in the autumn following, though they will be few in number, and not near ſo ſtrong as they will be the ſucceeding years, when the trees are ſtronger, and have better roots.

Theſe plants are preſerved in green-houſes, with Oranges, Myrtles, &c. in the winter ſeaſon, and require the ſame treatment; but notwithſtanding moſt people preſerve theſe plants in green-houſes, yet they will endure the cold of our ordinary winters in the open air, if planted againſt a warm wall, and covered with mats in froſty weather, in which ſituation they will produce ten times as many flowers in one ſeaſon, as thoſe kept in pots, and the flowers will likewiſe be much larger; but they ſhould not be planted abroad till they have ſome ſtrength, ſo that it will be neceſſary to keep them in pots two or three years; and when they are planted againſt the wall, which ſhould be in May, that they may have taken good root in the ground; before the ſucceeding winter you muſt turn them out of the pots, preſerving the earth to their roots, and nail up their ſhoots to the wall, ſhortening ſuch of them as are very long, that they may puſh out new ſhoots below to furniſh the wall, continuing to nail up all the ſhoots as they are produced.

In the middle, or towards the latter end of July, they will begin to flower, and continue to produce new ſhoots till the froſt prevents them. Toward the middle of November, if the nights are froſty, you muſt begin to cover your trees with mats, which ſhould be nailed pretty cloſe, but this ſhould be done when the trees are perfectly dry, otherwiſe the wet being lodged upon the branches, will often cauſe a mouldineſs upon them, and the air being excluded therefrom, will rot them in a ſhort time; it is alſo very neceſſary to take off theſe mats when the weather will permit, to prevent this mouldineſs, and only keep them cloſe covered in froſty weather; if a little mulch is laid upon the ſurface of the ground about their roots, and ſome bands of hay faſtened about their ſtems, to guard them from the froſt in very ſevere weather, it will preſerve them; in the ſpring as the weather is warmer, ſo by degrees the covering ſhould be taken off, but they ſhould not be expoſed too ſoon to the open air, for the morning froſts and dry eaſterly winds, which often reign in March, do frequently pinch theſe plants if they are too early expoſed.

When the covering is taken off, the trees ſhould be pruned, and cut out all the decayed branches, ſhortening the ſtrong ſhoots to about two feet long, which will cauſe them to ſhoot ſtrong, and produce many flowers.

American JASMINE. See IPOMOCA.

Arabian JASMINE, a genus of plants, ranged by Linnæus among the *diandria monogynia*, and of which there are five ſpecies. 1. Arabian Jaſmine, with a four-cornered ſtalk, with oval, acuminated leaves, and compreſſed, membranaceous ſeed-veſſels. 2. Arabian Jaſmine, with the lower leaves heart-ſhaped and obtuſe, and the upper leaves oval and ſharp-pointed. 3. Arabian Jaſmine, with oval, pointed, and waved leaves, and with round branches. 4. Arabian Jaſmine, with the foot-ſtalks of the leaves and flowers hairy; or the Sorrowful Tree. 5. Arabian Jaſmine, with obtuſe, ſpear-ſhaped, oval leaves.

Theſe are all ſhrubby plants, and natives of India. They require one method of culture, and are great ornaments to a garden: eſpecially the firſt ſpecies, which, if kept in a proper temperature of warmth, will continue flowering great part of the year.

Culture of the Arabian JASMINE.

Theſe plants are never cultivated with better ſucceſs than when grafted on the common Jaſmine.

The gardeners of Italy, under whoſe hands that operation ſucceeds happily, furniſh all Europe with them ready for planting. Theſe plants arrive in ſpring, and are to be treated as follows:

Let the whole plant, root and branches, be thoroughly waſhed, ſo that no moſs is left about the roots; if any branches are decayed, or any ſhoots riſen from the roots, they muſt be carefully taken off. Let the plants remain two days ſoaking in water, then prune the roots, and plant them in pots filled with freſh mould, and wood-pile earth: ſet the pots up to the rim in a bark-bed that has but a moderate heat; they muſt be ſhaded in the middle of the day, and watered gently once in three days.

In about three weeks, when they have begun to ſhoot partly from the ſtalk, and partly from the graft, all the buds upon the ſtock ſhould be rubbed off as they riſe, the plants muſt be more frequently watered, and the air admitted to them in the warm part of the day, by raiſing the glaſſes.

About the end of May raiſe the pots half out of the bark: ſtrew ſome freſh earth upon the ſurface, and by degrees inure them to the full air. In the middle of June take them quite out of the bark-bed, and ſet them out among the green-houſe plants, where they may ſtand till autumn, when they muſt be carried back to the green-houſe. Here let them ſtand till the beginning of November, and then remove them to the ſtove.

Theſe plants may alſo be propagated by layers or cuttings: the former is the ſureſt method, for unleſs the cuttings are very carefully managed, they will not take root.

The ſtalks are pliable, and may eaſily be brought down and laid in pots filled with ſoft loamy earth, which ſhould be plunged into a hot-bed of tan: if this is done in the ſpring, and they are carefully watered, the layers will have put out roots by autumn, when they may be cut from the old plants, and each tranſplanted into a ſeparate ſmall pot, and then plunged into the tan-bed, where they may be ſhaded from the ſun till they have taken new root.

If theſe plants are propagated by cuttings, they ſhould be planted in April in pots filled with the before-mentioned earth, and plunged into a moderate hot-bed of tanners bark. The pots ſhould be pretty large, and there may be ten or twelve cuttings planted in each; if theſe pots are cloſely covered with bell or hand-glaſſes, to exclude the air, it will greatly promote the plants taking root; they muſt be ſhaded from the ſun in the heat of the day, and gently refreſhed with water when the earth is dry; with this management the cuttings will have taken root by Auguſt, when they may be tranſplanted into ſeparate pots, and treated in the ſame way as the layers.

Theſe plants will live in a moderate degree of warmth; but if they are plunged in the tan-bed of the bark-ſtove, they will thrive much better, and produce a greater quantity of flowers; and as the leaves continue all the year, the plants will make a fine appearance in the ſtove at all ſeaſons.

Perſian JASMINE. See SYRINGA.

Scarlet JASMINE. See BIGNONIA.

Red JASMINE, a ſpecies of Plumeria. See the article PLUMERIA.

ICE PLANT, a ſpecies of Ficoides, or Fig Marigold.

The root of this is hung with innumerable fibres. The ſtalks ſpread themſelves every way, leaning upon the ground, and forming, when the root is well nouriſhed, a circle of a very conſiderable expanſe, from four to ſix feet in diameter. The ſtalks are thick, round, and full of juice, and every one ſends branches off in great number, and with perfect irregularity. The leaves are oblong, thick, juicy, obtuſe at the end, undulated, and often raiſed at the edges; in thoſe plants which flower freely they are ſmaller: in ſuch as do not, they are three inches long, and two in breadth. The colour of the ſtalks and leaves is a very fine green, and they are covered thick with ſhining particles, reſembling, according to the different vigour of the plant, and the light wherein it is viewed, ſpangles of ſilver, flakes of ice, fragments of cryſtal, or ſparks of diamonds: they are perfectly tranſparent and colourleſs, and of uncertain form; theſe give a glorious luſtre to the plant: and there is often, beſides this, ſome variety of colouring, even before it flowers, the places where the leaves are inſerted having a tinge of purple, and the tips of many of the leaves being browniſh. The flowers are numerous, and of a very ſingular appearance; they riſe from the ſtalks by very ſhort pedicles, and are in colour white, with a faint tinge of purple: this is principally ſeen on the extremity of the petals, and on their under ſide; and it goes off as the flower attains its full maturity; the tinct is beſt ſeen on the head of the bud, and here it is uſually of a bright purpliſh crimſon. The cup is formed of a ſingle piece, divided by five cuts at the edge. The petals, which compoſe the body of the flower, are innumerable: they ſtand in ſeveral diſtinct ſeries, and are long, narrow, undulated, and ſharp-pointed; and on tracing them to the baſe, their bottoms are found to coaleſce and unite into a kind of ring. In the centre ſtand numerous filaments, very ſlender, and crowned with incumbent buttons, and in the midſt of them appear five ſtyles: theſe have their origin from five obtuſe angles, which terminate the rudiment of the ſucceeding fruit, placed below the receptacle of the flower. The fruit is a round capſule with a dent; marked with five rays, and containing numerous roundiſh ſeeds.

Culture of the Ice-Plant.

This plant is a native of Africa, and is propagated by ſeeds, which muſt be ſcattered with care upon ſome rich garden-mould, laid four inches thick upon a common bed of dung; and let a quarter of an inch of the ſame mould be ſifted over them. As ſoon as they are put into the ground, let the following compoſt be made for the plants: mix a barrow of rich meadow-earth, a buſhel of pond-mud, and a peck of old cow-dung; add to this a peck and a half of coarſe ſand, and blending the whole together, throw it up in a heap to the weather. When the plants riſe let them be very gently watered; and as ſoon as it can be ſeen which are the ſtrongeſt, let the weaker be pulled up, leaving only as many as are intended to be raiſed, at due diſtances: here they may ſtand, to gather a little more ſtrength, and they muſt then be removed into ſeparate pots. Let as many ſmall pots be prepared as there are plants; and let an oyſter-ſhell be laid over the hole of each, to keep it open: then let them be filled with the compoſt, and the plants one by one taken carefully up and ſet in them. Give them a gentle watering, and ſet the pots up to the rim in a bark-bed, ſhading them with mats till they are thoroughly rooted. If there be not a bark-bed in readineſs, a common hot-bed of dung will do; but in this caſe the pots muſt be removed from one to another, as the heat declines: in the bark-bed it keeps up the whole time, and this is the great advantage bark has over dung. In this bed they are to be watered at times; and as the ſeaſon grows more mild they may be inured to the air.

In the beginning of July they may be taken out of the bed, and placed among the greenhouſe plants: at the time of their being taken from the bed let ſome be kept for flowering, in the uſual way; others planted for ſpreading and ſhewing the beauty of their leaves; and others managed for living all the winter. Let the firſt kind be treated as other green-houſe plants: then let thoſe which are intended for ſpreading, be planted in a warm and well ſheltered place in the open ground, allowing them a large ſpace to cover, and planting them in ſome compoſt thrown into a hole of the bed for that purpoſe. While thoſe treated in the uſual manner flower abundantly, theſe will attain many times their ſize, but produce few flowers, or perhaps none. Thoſe plants intended for winter muſt be taken up, and ſet in larger pots, ſhaking off a good quantity of the mould from their roots: they muſt be watered and ſhaded till they have taken root; and this ſhould be repeated once in ſixteen days. At every time of tranſplanting, thoſe branches which have flower-buds upon them muſt be taken off, and by this means the plant will be put backward more and more at every plantation. At the approach of winter they muſt be taken in the green-houſe, and tranſplanted no more: they will then ſettle themſelves for flowering: but it will come on ſlowly.

JERUSALEM *Artichoke*. See *Jeruſalem* Artichoke.

JERUSALEM *Cowſlip*, a ſpecies of Lungwort. See the article Lung-wort.

JERUSALEM *Sage*. See the article Sage-tree.

JESSAMINE, or JASMINE. See Jasmine.

JEWS *Mallow*. See *Jews* Mallow.

INARCHING. See the article Grafting.

INDIGO, *Anil*, a genus of plants of which there are three ſpecies. 1. The Jamaica Wild Indigo. 2. The Guatimal Indigo. 3. The Carolina Wild Indigo.

Culture of the Indigo.

The two firſt ſpecies are annual plants, and are propagated by ſeeds which muſt be ſown on a hot-bed early in the ſpring, and when the plants are two inches high, they ſhould be tranſplanted into ſmall pots filled with good freſh earth, and the pots plunged into a hot-bed of tanners bark; as the plants obtain ſtrength, they muſt have a large ſhare of free air admitted to them, by raiſing the glaſſes in the day-time. In June they may be expoſed to the open air, by which time they will begin to produce their flowers, which will be ſucceeded by pods in a ſhort time after, and in Auguſt their ſeeds will be perfected, if the plants are brought forward in the ſpring.

The third ſpecies requires the ſame method of culture, but this ſort will not bear to be expoſed wholly to the open air, even in the hotteſt weather: and if it is preſerved in a very warm ſtove in winter it will laſt two or three years.

Baſtard INDIGO, *Amorpha*, a genus of plants ranged by Linnæus among the *diadelphia decandria*, and of which there is only one ſpecies.

This is a ſhrubby plant, and a native of Carolina. It riſes with many irregular ſtems, to the height of twelve or fourteen feet. The leaves are long and winged. The flowers are produced at the extremities of the ſame year's ſhoots, in long ſlender ſpikes: they are ſmall and of a deep purple. It is cultivated here as a flowering ſhrub; but it never ripens ſeeds in England.

Culture of the Baſtard Indigo.

It may be propagated either by ſeeds or layers, but the latter is the moſt common method. In one year theſe layers will make good roots, and may then be taken off, and planted either in the nurſery or the places where they are deſigned to remain. As theſe ſhoots are large and ſoft, their upper parts are uſually killed by froſt in the winter, but the ſpring following they put out new ſhoots in plenty below the dead part.

The plants muſt have a ſheltered ſituation otherwiſe their branches will be broken by the wind.

INGA, a genus of plants which has no Engliſh name and only two ſpecies. 1. Inga with winged leaves, whoſe foot-ſtalks are bordered and jointed, and broad, fleſhy, waved pods. 2. Inga with winged leaves, whoſe foot-ſtalks are jointed and bordered, and very narrow woolly pods.

The firſt ſort grows naturally on the north-ſide of the iſland of Jamaica, and on the Spaniſh main. This riſes with a woody ſtalk fifteen or ſixteen feet high, covered with a white bark, ſending out many crooked irregular branches which hang to the ground, garniſhed with winged leaves, compoſed of three or four pair of oblong oval lobes, placed oppoſite on a midrib, which has a border or wing on each ſide between the lobes, of a lucid green on their upper ſide. The flowers come out in ſpikes toward the ends of the branches, each ſtanding in a diſtinct empalement, divided into five ſegments at the top, having a great number of very long purple ſtamina; the flowers are ſucceeded by long fleſhy pods three quarters of an inch broad, filled with a ſweet pulp in which the ſeeds are lodged.

The ſecond ſort grows naturally at La Vera Cruz. This ſeldom riſes more than eight or ten feet high, the branches are covered with a brown down, as are the under-ſide of the leaves; the lobes are not ſo obtuſe as the other ſort. The flowers come out of the wings of the branches in ſmall ſpikes; they are of a purpliſh colour within, but of a herbaceous colonr without, with long long purple ſtamina, and are ſucceeded by long, narrow, downy pods, containing ſeveral irregular ſeeds.

Culture of the Inga.

Theſe plants are propagated by ſeeds, which ſhould be ſown early in the ſpring in pots, and plunged into a hot-bed of tanners bark. When the plants are come two inches high, they ſhould be carefully tranſplanted into ſeparate pots and plunged into a hot-bed again, being careful to ſhade them from the ſun till they have taken new root; after which they muſt be treated in the ſame way as other tender exotic plants during the ſummer. At Michaelmas they muſt be removed into the tan in the warmeſt part of the bed. During the winter ſeaſon they muſt be kept very warm, and have but little water in cold weather. In the ſummer they will require to be oftener watered, and in hot weather they ſhould have a large ſhare of freſh air; but they muſt not be removed out of the ſtove, for they are too tender to endure the open air of this country, in the warmeſt part of the year.

INOCULATION, a very curious operation in gardening, otherwiſe called budding.

It is a kind of grafting practiſed in the ſummer months on ſeveral kinds of ſtone fruits, as peaches, nectarines, cherries, plums, apricots, &c. alſo upon oranges, jaſmines, and various other ſorts of plants, which ſucceed better by this practice, than by the common method of grafting. The operation is performed in the following manner:

Being provided with a ſharp knife, with a flat haft, made for this purpoſe, as alſo with the cuttings of the tree intended to be propagated, make choice of a ſmooth part of the ſtock intended to be inoculated; if deſigned to be dwarf, five or ſix inches from the ground: but if a ſtandard, it ſhould be budded at the height of five and a half, or ſix feet; then, with your knife, make an horizontal cut acroſs the rind of the ſtock, and from the middle of that cut make a ſlit downwards about two inches in length, being careful not to cut deeper than the thickneſs of the bark, leſt the ſtock is wounded; then having the cutting ready, cut off the leaf from the bud, leaving the foot-ſtalk remaining; cut the bud off lengthways, ſomewhat longer than the ſlit in the ſtock, with part of the wood to it; this done, with your knife ſlip the wood from the bark with a ſudden jerk, and obſerve whether the eye of the bud is left or not, for thoſe buds which loſe their eyes in ſtripping are uſeleſs; then with the handle of the knife gently raiſe the bark on each ſide of the ſlit in the ſtock, and inſert the bud therein, obſerving to place it ſmooth between the rind and wood of the ſtock, cutting off that part of the rind of the bud which may happen to be too long for the ſlit made in the ſtock; ſo having exactly fitted the bud to the ſtock, tie them cloſely round with wetted ſtrong baſs, taking care not to bind round the eye of the bud, which ſhould be left open. In about three weeks or a month, the buds will require to be looſened of the bandage, which, if not done in time, will be very injurious to them, but not to be entirely diveſted of the binding, as it is not amiſs to tye them ſlightly again, which will prevent the bark of the ſtock from flying open, as ſometimes happens, whereby the bud is much injured, if not entirely deſtroyed.

The March following, the ſtock ſhould be cut off about three inches above the place of inoculation, ſloping it the contrary way to the bud; this length is of uſe to faſten the ſhoot which proceeds from the bud, which otherwiſe might be blown out by ſtrong winds: but the autumn following, it ſhould be cut cloſe juſt above the bud, that the place of amputation may the more readily be barked over.

The time for inoculation, is from the middle of June, to the latter end of Auguſt, according to the ſeaſon and the forwardneſs of the different ſorts of trees intended to be budded, which muſt be known by trying if the buds will ſeparate from the wood eaſily. The firſt ſort of fruit commonly inoculated, is the apricot, and the laſt the orange; although the orange is commonly budded in Auguſt, it is very proper to try the operation in July, and thoſe ſtocks which miſcarrry may be budded the ſucceeding month, or even in September; but let it be done when it will, it is proper to place them in a gentle heat, giving them plenty of water, by which means there will be no reaſon to doubt of their ſucceſs.

In performing this operation, it will be neceſſary to take the opportunity of moiſt cloudy weather, as the bud and ſtock will more readily unite, being more replete with juices than in hot dry weather, when the ſtock will perſpire ſo faſt, as to leave the buds deſtitute of moiſture.

INULA, a genus of plants ranged by Linnæus among the *ſyngeneſia polygamia ſuperflua*, of which he diſtinguiſhes thirteen ſpecies, but only the nine following are cultivated in gardens. 1. Inula with oval rough leaves, woolly on their under-ſide, and the ſcales of the cup oval, or Elecampane. 2. Inula with hairy indented leaves, thoſe at the bottom oval, but thoſe on the ſtalks ſpear-ſhaped, and embracing the ſtalk, which have but few flowers. 3. Inula with ſpear-ſhaped, recurved, ſawed leaves, hairy flowers growing ſingly, and angular branches. 4. Inula with ſpear-ſhaped recurved leaves, which are indented, and rough flowers growing in cluſters. 5. Inula with narrow fleſhy leaves, ending in three points, called Golden Samphire. 6. Inula with ſoft, hairy, ſpear-ſhaped, entire leaves, and one flower on a ſtalk. 7. Inula with oblong, entire, rough leaves, and a hairy ſtalk divided by a corymbus, and flowers growing in cluſters. 8. Inula with ſpear-ſhaped ſawed leaves, embracing the ſtalk, hairy on their under-ſide, and an erect branching ſtalk. 9. Inula with ſpear-ſhaped prickly leaves, half embracing the ſtalk, which is taper, and has but one flower.

Theſe are all perennial plants: for the firſt ſpecies, ſee the article ELECAMPANE.

The ſecond ſpecies is a native of Italy and the ſouth parts of France. The third of many parts of Europe. The fourth ſort grows naturally on ſeveral mountains in the north of Europe; the fifth on the ſea-coaſt of this country; the ſixth is a native of Germany, and the ſeventh of Hungary. The eighth grows naturally in Auſtria, Bohemia, and other parts of Europe; it has an annual ſtalk, as has alſo the ninth ſpecies, which is a native of the ſouth of France. All theſe ſpecies thrive and flower in the open air of this country.

Culture of the INULA.

Theſe plants are propagated by parting of the roots in autumn, which is alſo the beſt time for tranſplanting them. They will require no other culture than to be kept clear from weeds.

They may alſo be propagated by ſowing their ſeeds in the ſpring, on a border of light earth, expoſed to the eaſt, where the morning ſun only is admitted. When the plants appear, they muſt be kept clean from weeds till they are fit to be removed when they muſt be tranſplanted into a ſhady border ſix inches aſunder. During the ſummer ſeaſon they muſt be often weeded, and in autumn tranſplanted to the border where they are to remain.

INVOLUCRUM, a kind of cup, which ſurrounds a number of flowers together, every one of which has beſides this general cup, its own particular perianthium. The involucrum conſiſts of a multitude of little leaves, diſpoſed in a radiated manner. See the article CALYX.

JOB'S TEARS, *Coix*, a genus of plants of which there are only two ſpecies. 1. Job's Tears with oval ſeeds. 2. American Job's Tears with angular ſeeds.

The firſt ſpecies grows naturally in the iſlands of the Archipelago. It has a thick fibrous root, from which riſe two or three jointed ſtalks, about two feet high. At each joint are placed the leaves, which are long and narrow reſembling thoſe of the reed. At the baſe of the leaves are ſituated the flowers in ſpikes, ſtanding on ſhort foot-ſtalks; theſe ſpikes are compoſed of male flowers only, and below them are ſituated one or two female flowers; the male flowers decay ſoon after they have ſhed their farina, but the germen of the female flowers ſwell to a large oval ſeed, which is ſmooth, and of a grey colour.

The ſecond ſpecies will grow to the height of ſeven or eight feet, and the ſtems grow hard like the reed or Indian corn; theſe branch out and produce ſeveral ſpikes of flowers.

Culture of the JOB'S TEARS.

The ſeeds of this plant may be procured from Portugal and ſhould be ſown on a moderate hot-bed in the ſpring to bring them forward; and afterwards tranſplant them on a warm border allowing each two feet room at leaſt, and when they have taken root, they will require no farther care but to keep them clean from weeds; they will flower about Midſummer, and in warm ſeaſons the ſeeds will ripen at Michaelmas.

The ſecond ſpecies will not live in the open air of our climate, ſo ſhould be planted in pots and plunged in the bark-ſtove, where it will live through the winter, and produce ripe ſeeds the ſecond year, and may be continued longer if deſired.

JOHNSONIA. See the article CALLICARPA.

St. JOHN's BREAD. See CAROB-TREE.

St. JOHNSWORT, *Hypericum*, a genus of plants, ranged by Linnæus among the *polyadelphia polyandria*, and of which he diſtinguiſhes no leſs than twenty-two ſpecies: but as the greateſt part of them are not admitted into gardens, except for the ſake of variety, it will be neceſſary to mention the following only. 1. St. Johnſwort, with three ſtyles to the flowers, a ſtalk with two faces, and obtuſe leaves, with pellucid punctures; or common St. Johnſwort. 2. St. Johnſwort, with three ſtyles to the flowers, and a ſquare, herbaceous ſtalk, commonly called Peterſwort. 3. St. Johnſwort, with three ſtyles to the flowers, ſtamina longer than the corolla, and a ſhrubby ſtalk. 4. St. Johnſwort, with three ſtyles to the flowers, acute cups, ſtamina ſhorter than the corolla, and a ſhrubby ſtalk. 5. St. Johnſwort, with five ſtyles to the flowers, a ſquare, ſingle, herbaceous ſtalk, and ſmooth entire leaves. 6. St. Johnſwort, with five ſtyles to the flowers, a ſhrubby ſtalk, and ſcarified leaves and branches. 7. St. Johnſwort, with three ſtyles to the flowers, a fleſhy ſeed-veſſel, and a ſhrubby ſtalk, looking two ways, being the common Tatſan, or Park-leaves.

Theſe are all ſhrubby plants: the firſt and ſecond ſpecies are natives of moſt parts of England; the third ſort grows naturally in Sicily, Spain, and Portugal; the fourth ſpecies grows naturally on Mount Olympus; the fifth ſpecies is a native of the country round Conſtantinople; the ſixth ſpecies grows naturally in the iſland of Minorca; the ſeventh ſort grows naturally in the woods in ſeveral parts of this country, and is therefore ſeldom admitted into gardens.

Culture of St. JOHNSWORT.

The three firſt ſpecies are propagated by ſuckers, which are ſent out in great plenty, and ſhould be taken off in March, juſt before they begin to ſhoot; they ſhould be planted in a light, dry ſoil, in which they will endure the ſevereſt cold of our climate very well.

They may be propagated alſo by cuttings, which ſhould be planted at the ſame ſeaſon, or by ſeeds ſown in Auguſt or September, as ſoon as they are ripe.

The fourth and fifth ſpecies are propagated by parting of their roots, becauſe the ſeeds do not always ripen in this country: the beſt time for this is in September. The plants ſhould have a dry ſoil, and a warm ſituation.

The ſixth ſpecies is propagated by cuttings, which, in June, ſhould be planted in pots filled with light earth, and plunged into a hot-bed, whoſe heat is upon the decline, ſhaded from the ſun in the heat of the day, and now and then refreſhed with water. In ſix or ſeven weeks they will have put out roots, when they ſhould be carefully taken up, and each planted in a ſeparate ſmall pot, placing them in the ſhade till they have taken new root: they muſt then be removed to a ſheltered ſituation, where they may remain till the froſt comes on, at which time they muſt be taken into ſhelter.

This ſpecies may alſo be propagated by ſeeds, which ſhould be ſown in autumn, in the manner directed for the fourth kind, and the plants afterwards treated like thoſe raiſed from cuttings.

Shrubby St. JOHNSWORT, a ſpecies of Spiræa. See the article Spiræa.

JONQUIL, a ſpecies of the Daffodil, or Narciſſus.

There are three different ſorts of Jonquils: viz. the great and ſmall Jonquil, with ſingle flowers, and the common ſort, with double flowers, which is moſt eſteemed.

Double JONQUIL. The root is roundiſh, large, and compoſed of many coats: the outer ſkin of a duſky brown, and the inner ones white: from the bottom there runs many fibres. The leaves are few, rarely more than three or four, often but two, from a root: and they are long and of a fine green; they are rounded on the back and ruſhy: browniſh towards the bottom, but for the reſt of a fine bright green, and hollowed along the inner ſide. The ſtalk is round, not very ſtrong, a foot high, and of a pale green, except at the baſe, where it is often whitiſh. This riſes terminated by a ſlight ſcabbard, containing the rudiments of the flowers; when they are perfected for blowing, this thin film burſts on one ſide, and three or four appear ſpreading themſelves into a kind of elegant noſegay. The flower is throughout yellow, but not without ſome variety of tinge; the backs of the petals are more duſky, the inſides paler, and the middle petals are paleſt. The light and ſhade from their accumulated numbers, gives a great deal more apparent variety.

Culture of the Double JONQUIL.

The ſingle Jonquil, from which this beautiful flower is raiſed, is a native of the warmer parts of Europe.

This plant will live through our winters in a ſheltered ſituation: and the proper ſoil for it is one of the light rich compoſts. When the gardener has choſe a warm part of the garden, he muſt dig out the earth of the border a full ſpade deep, and fill it up with the compoſt. He muſt then draw lines at a foot diſtance one way, and nine inches another: and in the center of each long ſquare made thus, let him plant an off-ſet from ſome good root, let him cover this with two inches of the ſame mould: and after this they will require no more care than to be kept clear from weeds, to be ſheltered in the ground in ſevere winters, by ſome peaſe-ſtraw thrown into the bed, and every other year to be taken up and have the earth taken out as at their firſt planting, and its place ſupplied with a freſh parcel of the ſame kind; thus they will continue to flower ſtrong and finely, and will encreaſe themſelves by off-ſets.

Yellow and White JONQUIL. The root of this plant is roundiſh, of the ſize of a cheſnut, and is covered with a brown ſkin, with many white fibres from the baſe. The leaves are narrow, long, hollowed, ſtriated, and of a fine freſh green. The ſtalk is round, upright, of a pale green, and eight inches high: on its top are placed four or five flowers of an odd form, and very elegant colour; they all riſe from one common point at the head of the ſtalk, and each has its ſeparate long foot-ſtalk: their natural poſition is drooping, and they are compoſed of a large nectarium or cup, and ſix petals riſing from its outſide toward the baſe. The cup is of a faint delicate yellow, and the petals are milk white. The colouring of the cup is various in degree and form, uſually it is compleatly yellow: and that colour is deeper in ſome flowers than in others; ſometimes the body of it is ſo pale, that it appears whitiſh, and the yellow is laid on in ſtreaks: and theſe will be ſometimes continued to the petals, though they are naturally of a pure and perfect white. There is no cup beſides the common ſcabbard, which ſerves for whole bunchs of flowers, and fades ſoon after it has burſt, to give them way. The nectarium is of a bell-like ſhape, and droops; the petals are narrow and turn up. Within the nectarium riſe ſix filaments, crowned with oblong buttons, which are not ſeen in the natural poſition of the flower, becauſe not equal to the nectarium in length; and from the rudiment of the ſeed-veſſel, which is placed under the receptacle of the flower, riſes a ſingle ſtyle, longer than the filaments, and crowned with a three-parted, hollowed, obtuſe head.

Culture of this JONQUIL.

This plant is a native of the ſouthern parts of Europe: it is found wild in moiſt, warm places, where the ſoil is deep and rich. The common garden-mould, with an addition of wood-pile earth and rotted cow-dung, will ſuit it beſt: about a peck of each of theſe latter ingredients ſhould be added to a buſhel of the other; it requires natural or artificial ſhade in the heat of the day, and in the flowering ſeaſon to be often watered. It may be propagated by off-ſets in the uſual manner, but the beſt way is to raiſe it from ſeeds. There will always be produced by that management a great variety of flowers; and if ſeeds be again ſaved from the fineſt of thoſe, the flowers will be improved almoſt without end or limitation. The method of raiſing it from ſeed muſt be the ſame with that uſed for the Narciſſus's. See the article NARCISSUS.

IPOMOEA, SCARLET CONVOLVULUS, QUAMOCLIT, or AMERICAN JASMINE a genus of plants, ranged by Linnæus among the *pentandria monogynia*. He diſtinguiſhes no leſs than ſeventeen ſpecies of this plant, among which the eight following are moſt cultivated in gardens. 1. Ipomoea, with very narrow, many pointed leaves, and ſolitary flowers. 2. Ipomoea, with heart-ſhaped, pointed leaves, angular at the baſe, and many flowers on a ſtalk. 3. Ipomoea, with acute, heart-ſhaped, entire leaves, and ſolitary flowers. 4. Ipomoea, with heart-ſhaped, entire leaves, flowers growing in cluſters, and undivided petals. 5. Ipomoea, with hand-ſhaped leaves, compoſed of ſeven ſpear-ſhaped, entire lobes, commonly called Spaniſh Arbour Vine. 6. Ipomoea, with heart-ſhaped leaves, having three lobes, and three flowers on a foot-ſtalk. 7. Ipomoea, with hand-ſhaped leaves, and flowers growing in cluſters; or Tyger's-foot. 8. Ipomoea, with ſmooth, hand-ſhaped leaves, whoſe lobes ſit cloſe, and a ſmooth ſtalk.

The firſt ſpecies is by ſome called Indian Pink. It riſes with a twining ſtalk ſeven or eight feet high. The branches are numerous, and very ſlender, ſo twine about any neighbouring ſupport. The leaves are winged, about an inch long, and of a deep green. The flowers are placed at the ſides of the ſtalks, ſtanding upon ſlender foot-ſtalks; they are funnel-ſhaped, having a tube about an inch long, which is narrow at bottom, but gradually widens at the top, and ſpreads open, flat, with five corners or angles. Their colour is a moſt beautiful ſcarlet, and they make a very elegant appearance.

The ſecond ſpecies is a native of Carolina and the Bahama Iſlands. It riſes with a twining ſtalk five or ſix feet high. The leaves are heart-ſhaped, ending in acute points, and divided into angles at their baſe. The flowers appear at the ſides of the branches, upon ſlender foot-ſtalks, which ſupport three or four flowers of the ſame ſhape and ſize as the former, but not ſo deep coloured.

There is a variety of this with orange-coloured flowers, but they do not differ in any other reſpect.

The third ſpecies is like the ſecond, but the leaves have no angles, and the flowers are of a roſe colour, each foot-ſtalk ſupporting one flower.

The fourth ſpecies is a native of the Weſt Indies. It has a ſlender twining ſtalk, which when near any ſupport, riſes to the height of ten or twelve feet. The leaves are heart-ſhaped and entire. The flowers are blue, and ſituated at the ſides of the branches, upon ſlender foot-ſtalks, in cluſters.

The fifth ſpecies grows naturally in Spain. It riſes to a very great height, and ſends out many branches. The ſtalks are covered with a purple bark. The leaves are divided into ſeven lobes, almoſt to the bottom. The flowers appear at the ſides of the ſtalks: they are large, funnel-ſhaped, of a bright yellow colour, and ſmell very ſweet.

This plant is cultivated in moſt of the iſlands in the Weſt Indies, to cover arbours for ſhade: and one of them will cover an arbour of fifty feet long.

The ſixth is alſo a native of the Weſt Indies. It riſes with a twining ſtalk ten or twelve feet high. The leaves are heart-ſhaped, and divided into three lobes. The foot-ſtalks riſe from the ſides of the ſtalks, each ſuſtaining three purple flowers.

The ſeventh ſpecies grows naturally in the Weſt Indies. It has a twining hairy ſtalk, which riſes four or five feet high. The leaves are hairy, hand-ſhaped, and divided to the bottom into ſeveral lobes. The flowers appear in cluſters, incloſed in a five-cornered involucrum; they are of a purpliſh colour, but ſmall, and open only in the evening, ſo make no figure.

The eighth ſpecies is a native of the Weſt Indies. It has a ſmooth twining ſtalk, which riſes four or five feet high. The leaves are hand-ſhaped, having five lobes, and ſit cloſe to the ſtalks. The flowers are ſituated on the ſides of the ſtalks upon ſhort foot-ſtalks, which ſuſtain two or three purple flowers.

Culture of the IPOMOEA.

The firſt and fourth ſpecies are propagated by ſeeds, which muſt be ſown on a hot-bed in the ſpring. When the plants appear they ſhould be each tranſplanted into a ſeparate ſmall pot, and plunged into a freſh hot-bed: and ſticks muſt be placed down by each pot for the plants to twine round. After they have taken new root, a great ſhare of air muſt be admitted to them in warm weather, to prevent their drawing up weak; and when they are advanced too high to remain under the frame, they muſt be removed into the tan-bed in the ſtove, where they ſhould have ſupport for their branches, which extend to a conſiderable diſtance.

They will begin to flower in June, and there will be a ſucceſſion of flowers till the end of September. The ſeeds ripen in autumn.

The ſecond and third ſpecies are propagated by ſeeds, which if ſown on a border of light freſh earth in the ſpring, the plants will come up, and in favourable ſeaſons will flower, and produce good ſeeds; but the uſual and beſt method of raiſing theſe plants, is by ſowing the ſeeds on a gentle hot-bed, and afterwards tranſplanting them into the borders: in this manner they are brought forward, and perfect their ſeeds much earlier.

The ſeeds of the fifth ſpecies muſt be ſown upon a hot-bed in the ſpring, and when the plants come up they muſt be tranſplanted into ſeparate pots, and plunged into a freſh hot-bed; but as they will ſoon grow too tall to ſtand under a frame, they ſhould be removed into the bark-ſtove, where they muſt always remain; and as theſe plants extend their ſhoots to a very great height, they require a tall ſtove, where they may have room to grow, without which they will never produce any flowers.

The plants of the ſixth, ſeventh, and eighth ſpecies muſt be raiſed from ſeeds, ſown on a hot-bed in the ſpring, and afterwards planted in ſeparate pots, plunging them into another hot-bed, where they may remain till they reach the glaſſes, then they ſhould be removed into a glaſs-caſe, where they may have room, and be ſheltered from the cold, but they ſhould have a large ſhare of free air admitted to them in warm weather.

With this treatment the plants will flower and produce ripe ſeeds.

IRIS, *Flower-de-luce*, a genus of plants, ranged by Linnæus among the *triandria monogynia*, and of which he enumerates eighteen ſpecies: among theſe are the Hermodactylus, the Xiphium, and the Siſyrinchium of former authors.

It would be needleſs to give a particular deſcription of all theſe ſpecies, the more ſo as ſome of them are never admitted into gardens: the culture of the ten following ſorts will be a ſufficient direction to the gardener for that of all the others. 1. Bearded Iris, with the ſtalk ſhorter than the leaves, bearing a ſingle flower; or Auſtrian Dwarf Iris. 2. Round-ſtalked Iris, with narrow equal leaves, and beardleſs flowers, with three-cornered rudiments; or Yellow-painted Iris. 3. Beardleſs Iris, with furrowed, ſlender, and ſharp-pointed leaves, longer than its ſtalk; or the Perſian Iris. 4. Beardleſs Iris, with hollowed leaves, ſmall to the point, and ſhorter than the ſtalk; or Violet Bulbous Iris. 5. Beardleſs Iris, with the ſtalk of the length of the radical leaves, and carrying ſome ſmall leaves, and ſeveral flowers; or the Hungarian Iris. 6. Bearded Iris, with one flower, and broad leaves riſing above the ſtalk; or broad-leaved Portugal Iris. 7. Single flowered, bearded Iris, with the ſtalk longer than the leaves; or Suſian Iris. 8. Bearded Iris, with one flower upon a ſtalk, lower than the leaves ; or Peach-bloom Iris. 9. Beardleſs Iris, with the leaves cloſing at their edges ; or Striped Bulbous Iris. 10. Beardleſs Iris, with hollowed and pointed leaves ſhorter than the ſtalks ; or Spaniſh Bulbous Iris.

Auſtrian Dwarf IRIS. This plant has a tuberous root, irregular, and whitiſh : it runs juſt under the ſurface, and not unfrequently above it : and is thick, knotty, and of a faint but not unpleaſing ſmell : the taſte acrid and nauſeous. The leaves are numerous, and of a pale but fine green : they are broad, and they terminate in a point, they are three inches in length, and of a firm ſubſtance ; in the midſt of theſe riſes a ſingle ſtalk, firm, knotty, flatted, and about two inches high, bearing a ſingle, but large and very conſpicuous flower : the leaves exceed the ſtalk in height, but the flowers riſe above them, and the whole plant has a moſt pleaſing aſpect. There is no ſmell, but nature has well atoned for that defect in ſize and colouring. Naturally the general colour is a blueiſh purple, paler, and leſs glowing where the ſoil does not ſuit, but in more favourable ground it becomes deep and very rich in tinct ; this is the moſt natural diverſity, but it is ſometimes white, and the ſame defect of nouriſhment which denies colour to the flowers : reducing alſo their ſubſtance they become papery, and though the white wants luſtre, delicate and not unpleaſing. The laſt variation ſeen in the wild plant, is, that the petals are ſtained with innumerable veins, of a perfect violet, which, when the body of the flower has more of the purple, and leſs of the blue tinct, gives a pleaſing variation. The bearded part at the baſe of the petals, which is ſlighter in this than many other ſpecies, is of a deep blue : the petals that ſtand upright will be of a pale, the others of a deep purple, both plain, or both veined : the upper will be fleſh colour, veined with purple, or ſtained with white, the others blue with yellow. The whole flower will be fleſh-coloured, ſtained with a deep purple, in regular and beautiful veins, and this either throughout, or in the upper petals only, the others being painted with a great deal of yellow. The lower petals will be ſometimes perfect gold, or veined lightly with a fleſhy crimſon : the upper ones in various degrees purple. It riſes ſeemingly naked from the ſummit of the ſtalk, but at ſome diſtance below there is a kind of filmy ſcabbard, ſlight and inconſiderable : ſix petals riſe from the flower, and they are truly diſtinct, though united by their bottoms : they are oblong, large, waved at the edges, obtuſe at the ends, and variouſly diſpoſed : three are placed outward, and theſe droop, three others ſtand inward, and they are erect : and at the baſe of each of the three outer petals there is a bearded line : this is the nectarium of the flower. It is not ſo conſpicuous in this as in ſome other ſpecies, but lies in a manner buried in the hollow of the petals. The filaments are three, they are ſituated upon the lower petals, and they have oblong depreſſed buttons. The ſtyle is ſingle and very ſhort, but its top or ſtigma is extremely conſpicuous, large, and divided into three expanded ſegments. The ſeed-veſſel is oblong and pointed, and contains in three cells numerous large ſeeds.

Culture of this IRIS.

It may be propagated by parting the roots ; but the beſt method is by ſeeds.

The beſt ſoil for it is a rich mould, not too damp, and the fitteſt expoſure, eaſt and a little ſouth. Let a border in ſuch a ſituation be dug out, and its place filled with the following compoſt : mix a load of rich meadow-earth with half a load of pond-mud, two buſhels of ſand, and three of old cow-dung : let theſe be put together in ſpring, or it will be better if in the preceding autumn ; and while they lie in the heap to mellow with the weather, let ſeeds be ſaved : for this purpoſe, the gardener muſt mark two or three flowers ; let them be ſuch as are large, deep coloured, with ſome yellow in the variegations, and with ſhort ſtalks. Let the roots be refreſhed with water while the ſeed-veſſel is enlarging ; and let the tops of the leaves be cut off. When it has the full ſize, give it no more water ; and when the ſeeds are ripe, and the huſk dry, carefully cut it off, and lay it on a ſhelf to burſt at leiſure : when the ſeeds have been ſpread abroad eight or ten days they will be fit for ſowing. Let the compoſt be thrown into the border, and the ſurface levelled : ſcatter on the ſeeds not too thick, and ſift over them a quarter of an inch of the ſame mould. Throw a few looſe buſhes over the border : when weeds appear take them up by hand, and again lay on the buſhes. In ſpring watch for the young plants, clear away weeds carefully, and refreſh them with gentle waterings. When you can perceive which are the ſtronger plants, take up the weaker where they grow too thick, and leave the plantation at about five inches diſtance. All ſummer keep the bed clear from weeds ; and when the mould is too dry gently water it. In autumn ſift on half an inch of new mould, and the next ſpring many of the plants will flower. Mark thoſe which promiſe beſt, that is, ſuch as have largeſt flowers, and thoſe moſt variegated, and with the ſtrongeſt colours : leave theſe in the beds at about a foot diſtance ; and in autumn take up the reſt. Plant them out into another border of the ſame compoſt, in the ſame expoſure, and with the ſame diſtance. They will flower ſtronger the ſucceeding year, and it will then be known, which are worth preſerving : let the moſt perfect and beautiful be every year marked for ſeed ; and by a repeated ſowing in this manner, the gardener will have endleſs variety and beauty.

Yellow painted IRIS. The root of this plant is irregular and ſpreading, blackiſh, juicy, knobbed, and full of long tough fibres. The leaves are long, narrow, and of a pale green, with ſome little tinge of greyiſh. The ſtalk is round, upright, firm, and not very thick : the leaves on this are few, of a greyiſh green, pointed at the end, and of a firm ſubſtance. The top of the ſtalk is covered with three, four, or more flowers, which open in ſucceſſion, and have a great deal of elegance. They conſiſt each of ſix petals, three of which turn down, and three ſtand upward. In the ſtate of nature the three petals which turn down are yellow, veined a little with purple, and the three which ſtand upright much more deeply clouded with that colour : but, in the moſt perfect and elegant ſtate, the three petals which fall down are of a fine yellow, though not without ſome tinge of brown, and they are veined with the moſt glowing violet purple : the three upper ones have the ſame ground colour, but they are clouded with a more lively purple, in a wild and pleaſing irregularity : and there are three other broad parts, reſembling ſmaller petals, in this flower, which, though naturally pale, will receive alſo from culture various degrees of colouring. In the place of a cup, there are a few vague and light films : the ſix petals, various in form and diſpoſition, are united at their baſes : the filaments are three, and they lie upon the petals, which turn down ; and from the rudiment, which ſtands below the receptacle of the flower, riſes a ſingle and very ſhort ſtyle, crowned with a vaſt ſtigma, divided into three broad parts.

Culture of this IRIS.

This plant is propagated by parting the roots : the time for which is when the leaves begin to change colour, which is uſually in Auguſt. The pieces ſhould not be too ſmall; and they ſhould be planted in a ſhady border, at two feet and a half diſtance, and watered often. The bed muſt be ſhaded from the noon-day ſun, but open to the eaſt, that it may have its influence in the morning, and the beſt ſoil is an equal mixture of rich meadow-earth, and pond-mud.

The Perſian IRIS. The root of this plant is of the bulbous kind, but oblong, white, inſipid to the taſte, and covered with many films, under which its main ſkins or coats lie. Their juice is acrid ; and from the baſe of this bulb run many thick yellowiſh fibres, tufted with numerous hairs. The ſtalk is very ſhort, ſeldom more than three inches in height, and at the baſe is covered with ſeveral thick whitiſh membranes ; theſe are continuations of the outer coats of the root ; they envelope one another, and open at the points to let out the ſtalks, and they are ribbed, the ribs faintly ſtained reddiſh. With the ſtalks riſe about ſix leaves from within the covering of the ſame common membrane: they are longer than the ſtalk, but not much; they are narrow, hollowed, ſharp-pointed, ſtrongly ribbed lengthways, and of a greyiſh green; they ſurround the ſtalk at the baſe, but within them it is covered with two others, ſhorter, greener, and more fleſhy. The ſtalk when naked is of a pearly whitiſh colour; but thoſe leaves which cloſely cover it are green. The flower ſtands ſingle at the top, and is large and very beautiful. It has no cup, a few ſlight films ſerve that purpoſe. The ſhape is ſingular as well as the colouring, and it is compoſed of ſix petals. Of theſe, three unite themſelves into a body and ſtand erect in the middle; the other three are placed obliquely, they all adhere by their buttons; and they are long, large, and obtuſe. The ground tinct is a pearly white, ſtained more or leſs with blue. The three outermoſt petals have all along their middle a broad line of yellow, diverſifyed with ſpots of a lively brown; and on each ſide run innumerable little lines of violet. The extremity of this golden line ſtops ſhort of the end of the leaf, and it is there of a finer yellow than elſewhere. At the end is a large ſpot of the moſt perfect deep violet purple, with the velvet hue, and this is ſurrounded with white: the upright petals are more pearly, but they have alſo their elegant variegations. The filaments are three: they are affixed to the baſes of the three outer petals and they are ſhort, but crowned with very long buttons, flatted and furrowed. The ſtyle is ſingle and ſhort, it riſes from a rudiment of the ſeed-veſſel, placed beneath the receptacle of the flower. The ſeed-veſſel is oblong, marked with three ridges, and filled with numerous large ſeeds.

Culture of this IRIS.

This elegant ſpecies is a native of the eaſt; it is never without beauty, but the culture will add greatly to the variety and luſtre of its uſual colouring. The plants muſt for this purpoſe be raiſed from ſeed; and to give them every advantage, the ſoil, ſituation, and refreſhment of the ground muſt be attended to with care.

In November mix up the following compoſt to lie nine months in the air before it is uſed.

Dig a barrow of mould from under the turf in an upland paſture; mix with it a buſhel of earth from under a wood-pile, half a buſhel of old cow-dung, a peck of marle, or in its place, a peck and a half of pond-mud, and half a peck of ſand. Strew over theſe a handful of wood-ſoot, and two ounces of common ſalt: mix them very well in a heap, and turn it as often as weeds appear. In ſpring mark three or four of the fineſt flowers where they blow ſtrong and lively; as they fade, give them once in three days gentle waterings; and now and then ſtir the ſurface of the mould. Thus forward the ſeeds, and when they have attained their full bigneſs let them ſtand ten days unwatered to harden. Then cut off the heads, and lay them on a papered ſhelf in an airy room.

When they have lain to be well dryed, open them; ſhake out the ſeeds, and ſcatter them to harden on the ſame ſhelf. Then prepare boxes for the ſowing them; theſe muſt be a yard long, two feet eight inches broad, ſeven inches deep, and nailed up, of firm but rough boards. Bore five holes at equal diſtances in each, and cover thoſe with oyſter-ſhells. Then fill the boxes with the compoſt, and ſcatter on the ſeeds pretty thick. Sift over them a quarter of an inch of the ſame compoſt, and ſet them upon bricks, in a place where they may have the morning ſun, but be ſhaded from that of noon. The end of July or beginning of Auguſt, will, according to this management, be the time of ſowing them. Keep the mould clear from weeds, refreſh it at times with a little water, and in the beginning of October remove the boxes into a place defended from all cold, and open to the noon ſun; and let a mat be hung from the wall, that may in bad weather be let down over them.

Early in ſpring the plants will appear. Let the weakeſt be taken up where they riſe too thick; let the mould be kept clear from weeds, and refreſhed now and then with water; and at the end of April let them be removed into their firſt place. In July the leaves will be decayed: let a quarter of an inch of freſh compoſt be ſifted over them; and let them in October be removed again into their winter ſituation. The compoſt from which the filling of the boxes was taken muſt remain open to the air, turned at times and kept clear from weeds.

The next year, in July, when the leaves of the young plants are decayed, a border muſt be prepared for their roots. Chuſe a warm ſheltered place, take out the mould, and throw in two thirds of the compoſt: lay the ſurface level, and draw lines lengthways and acroſs, at four inches and a half diſtance; mark an opening in the centre of each little ſquare, and then ſeparate the roots from the mould in the boxes, picking them out by hand, not ſifting the mould as may be done in ſome caſes.

Set one root in the centre of each ſquare upright and ſteady; and when all are placed, ſift over them ſome of the remaining compoſt; let them be covered two inches above the top, and leave them thus to nature. Weeding and watering are all they require further. The remaining compoſt muſt be ſaved to ſift over them, a quarter of an inch at a time, in autumn, to defend them from froſt, and in ſpring before their ſhooting. The third year they will flower, and there will be found a great variety: the fineſt muſt be marked, and when they have flowered three ſeaſons, ſeeds muſt be ſaved from them and ſown in the ſame manner. The firſt crop will exceed the common flowers of this kind; but the produce of the beſt among theſe will be extremely beautiful.

Once in three years the roots ſhould be taken up, but they muſt ſoon be planted, for they are ſpoiled by the air. This taking up is for removing the off-ſets, and refreſhing the bed with new compoſt, and that ſhould be made as the firſt.

Violet Bulbous IRIS. The root of this Iris is roundiſh, large, fleſhy, and covered with ſeveral dark membranes. The leaves are hollowed, oblong, pointed, and of a fine green, but often irregularly ſpotted on the inſide. The ſtalk is juicy, low, ſurrounded with a few leaves and membranes, and naturally ſupports only one flower.

Sometimes from the luxuriance of culture two or three will burſt out in ſucceſſion; but they are not ſo fine as when the effort of nature is for one, and all the juices are ſent to its nouriſhment. This is large, and of a deep and elegant violet blue, variegated with no other colour, except a mark of yellow toward the extremities of the three lower petals: the whole flower conſiſts of ſix; three are placed outward, and hang downward; three inward, and ſtand erect. The baſes of the three lower are in many of the kinds marked in a particular manner by a hairy nectarium, theſe are called bearded flowers. In the place of thoſe beards there are in this on each of the petals three dots, which ſerve the ſame purpoſe, though without the ornaments; and the flowers are therefore called beardleſs.

Culture of this IRIS.

The root freely produces off-ſets; by theſe it is eaſily propagated. It is a native of Spain, and therefore requires, though not a ſtove or green-houſe, yet the warmeſt part of our common garden ground; and this muſt not be too much open to the ſun. If the gardener's care proceeds no farther than to the increaſing it by off-ſets, let him allow theſe in ſuch a part of the ground a proper compoſt, and not bring them thither till they have ſtood one ſeaſon in a nurſery bed; after being ſeparated from the old roots, for the firſt year they blow weakly.

The compoſt muſt be made thus: mix equal parts of meadow-earth and pond-mud, and add about one fourth rotted cow-dung; this will be a rich, and yet cool mixture, which the plant loves. If he uſe off-ſets, let them be brought in from the nurſery ſoon after their leaves are decayed, and planted at eight inches diſtance. Every year after flowering let them be taken up, cleaned, and immediately planted again in freſh compoſt of the ſame kind; and their off-ſets ſeparated and raiſed as before directed. For the raiſing them from ſeed let a bed be prepared in the nurſery well ſheltered from winds, and from the noon-ſun, and on this filled with the compoſt juſt directed, let the ſeeds ſaved from a thriving and well flowering plant be ſown in the laſt week of Auguſt. They muſt be ſcattered equally over the ſurface, and a fingers breadth of the ſame mould ſifted over them. Lay a piece of hawthorn on the bed, and keep it clear from weeds; when the earth dries allow a little water; but this muſt be given with great care not to waſh the ſeeds out of the ground. If the bed lays open on any part to cold winds, plant a reed-hedge to ſkreen it in winter; and in hard froſts draw a mat over the buſh; and thus they will riſe according to their nature early in the ſpring. If they riſe too cloſe they muſt be thinned. Let all weeds be cleared off as ſoon as they appear, and let them be allowed moderate waterings.

In June the young leaves will fade: clip them off, and ſift on half an inch of mould, thus let them lie the winter. Next ſpring treat them as before, but in the end of June when their leaves decay, take them up; let a large bed of the compoſt be prepared in the ſame or ſome like part of the nurſery: ſift the mould of the ſeed-bed to get the roots, and plant them regularly as ſoon as ſeparated in the new bed, at four inches diſtance: defend them in ſevere froſts, weed them in ſpring, water them as there ſhall be occaſion, and thus raiſe them to flower. Mark the fineſt: and when the leaves wither, take up the roots of thoſe and plant them at a foot aſunder, in ſuch a bed as is directed for the off-ſets in the flower-garden: after this treat them as the roots raiſed from off-ſets, encreaſing them the ſame way. The next years flowering in the nurſery bed will ſhew which of the others are worthy to be mixed with theſe, and they ſhould be brought in when the leaves wither, the garden-bed being enlarged to receive them. The reſt may be planted in common places to give variety.

Hungarian IRIS. The root of this plant is thick, irregular, knotty, and yellowiſh. The leaves are numerous, long, broad, ſharp at the point and edges, and of a freſh but ſomewhat blueiſh green. The ſtalk is round, of a pale green, upright, but with ſome little bendings, and a foot and a half high: toward the ground it is often purpliſh, as are alſo the leaves, which riſe with it from the root. There ſtand on this in an irregular manner, two, three, or four ſlight leaves, much ſmaller than thoſe from the root, and paler.

The flowers are large and very beautiful, one uſually terminates the ſtalk: and there burſt forth others without any regularity, ſideways, a little below it: theſe are formed as thoſe of the Bulbous Iris juſt deſcribed; they have no cup: three petals ſtand upright, three droop, and there are three broad and leafy tops to the head of the ſtyle, which repreſent ſo many other ſmaller. The colouring is extremely various and uncertain, but always elegant. The three upright petals are of a fine gold yellow, naturally plain and elegant, only in the purity of the tinct, but ſometimes veined with a deeper hue: the three petals which hang down are white, variegated with ſtreaks, and of purple or crimſon. The bearded part at the baſe is yellow toward the bottom, and whitiſh toward the end; and the three heads of the ſtyle are alſo variegated with yellow and white; this is the uſual colouring, but in different flowers it varies extremely. In ſome the three under petals are altogether white, in others they are fleſh coloured, and in others they are crimſon at the baſe, from whence all the rays proceed, which run in a regular direction to the tip, of the ſame colour.

Culture of this Iris.

The common method of propagating this, is, as in the other, by the root; as that of the Bulbous Iris produces off-ſets, this ſpreads out every way in thick irregular parts, and will bear to be every year or two, divided, and the ſeparated parts will flower, if not too ſmall, the firſt year. It is a native of Spain, and loves a light rich ſoil, with ſome moiſture: and though it flouriſhes in a warm air, it does beſt where there is leaſt ſun: therefore let a part of the garden ſuited to this be choſen, and let the compoſt be paſture-earth and pond-mud, each a buſhel: wood-pile earth and cow-dung, of each half a buſhel, and a peck of ſand: let theſe be mixed in ſpring, and in the firſt week of September thrown into the place ſelected for the plant; let the roots be taken up and parted in a cloudy day, when there is a probability of ſhowers, and immediately planted at two feet diſtance in this bed. If there fall no ſhowers, they muſt have gentle waterings, and they will flower unleſs too ſmall, the next year. The way to raiſe the plant in its higheſt perfection, and to procure flowers of more than ordinary beauty, is to ſow the ſeeds. Theſe ſhould be gathered from a handſome plant, and ſown in a nurſery bed of the ſame compoſt, managing them as the former kind; and when they come to flower, ſelecting the fineſt and planting them in ſuch a bed in the flower-garden; among theſe fine flowers that will ſhew a great and elegant variety of colouring, let the beſt be marked for ſeed again, and that ſown with the ſame precaution. In this manner will be obtained the fineſt flowers the plant is capable of producing, and theſe are then to be managed with the ſame kind of care directed for the parted roots.

The place in the garden muſt be ſhaded, for the full ſun deſtroys their flowers in a few days, which naturally are much more laſting: there muſt be water allowed them frequently, from the firſt ſhoot of the ſtalk till the time of their flowering is paſt. When they are in bloom they ſhould be ſheltered by a reed-hedge, if the place be open to any ſharp wind: and the firſt flowers muſt be cut off as they grow towards fading, that the others may open in full perfection, and unleſs ſeed be wanted let none ſtand to ripen any. When ſeed is required, let only the firſt flowers be permitted to ripen: for the others would exhauſt the nouriſhment, and the ſeeds would be leſs perfect; let theſe be dried, and ſown in the ſame manner, and at the ſame ſeaſon with thoſe of the other kind. For the management of the root nothing more is required than the allowing them freſh compoſt every year: this muſt be done in Auguſt; when the flower-ſtalks are quite faded, and the leaves look pale, they muſt be immediately planted again: for the intention of this is to prevent their ſpreading to ſo large a bulk as to rob one another of the due nouriſhment.

Broad-leaved Portugal IRIS. The root of this Iris is thick, tuberous, long, and white: it ſpreads under the ſurface, and is of an acrid taſte. The leaves are numerous, broad, and ſhort: they riſe many together, and are of a deep but ſomewhat blueiſh green, of a firm ſubſtance, and marked with three or four longitudinal ribs. The ſtalk riſes in the midſt of theſe, and is about two inches high: roundiſh, irregular, knotted, and covered in part with ſome ſlight membranes. On its top ſtands one beautiful and very conſpicuous flower: its natural colour is a fine violet blue, but ſometimes it is variegated with yellow, in various degrees and forms, and often with great elegance. There is no cup to the flower, and it is formed as in the others of ſix petals, three of which ſtand erect, and three turn back; theſe are all united at their baſes, and in the centre riſes a ſhort ſtyle, crowned at its top with three leafy diviſions, which hang in a wild manner, and reſemble three additional petals; this is common to the reſt of the Iris's.

Culture of this Iris.

The ſeeds for propagating this Iris ſhould be ſaved from a ſtrong and vigorous plant in the following manner: while it is in flower let the ground be cleared about it, and frequently dug up with a trowel at a proper diſtance. The ſtalk muſt be tied up to a ſhort ſtick, and it muſt have frequent and gentle waterings. When the ſeed-veſſel has been thus brought to its full bigneſs, deſiſt from watering, and let it harden in the air; cut it off when hard, and lay it in an airy room on a ſhelf: break it when it has lain there a week, then let the ſeparated ſeeds lie a fortnight to harden, and prepare for ſowing them.

The proper compoſt for this Iris is made as follows: let the gardener mix a buſhel of garden-mould, with the ſame quantity of earth from under a wood-pile, and three pecks of cow-dung, with a quart of ſand, two quarts of ſoot, and two ounces of ſea-ſalt: let this lie ſix months expoſed to the air in a heap, turning it often, and then add to it a peck of lime freſh made: let it be well wrought together, and frequently turned, and thus let it lie half a year longer. The beſt time to make the firſt mixture is in autumn, then in the ſpring the lime may be added, and in the autumn following the compoſt will be fit for the reception of the ſeeds.

Chuſe two or three broad, and not very deep earthen pans. Cover the bottoms with chips of free-ſtone, having firſt bored two holes in each, to let out the water. Then pour in as much of the compoſt as will lie four inches thick. Scatter the ſeeds over this with an even hand, and let them lie at one inch diſtance or thereabout. Sift over them half an inch of the ſame compoſt, and then give a light and gentle watering.

Set theſe plants in a place where they may have the morning ſun; and from time to time examine the mould that it do not grow too dry. Give waterings when required; but always very moderate. In October ſet the plants in a place where they may have the full noon-ſun and thus let them ſtand through the winter. In April they muſt be removed to their former place; and from this time they muſt be managed as we have directed for the ſeedling flowers. Theſe plants muſt be thinned where they riſe too cloſe; and when the young leaves fade there muſt be a quarter of an inch of mould ſifted over them. Weeds muſt be kept off, and moſs; and ſuch waterings muſt be allowed as will give them full power of vegetation. When they are ſtrong enough to be tranſplanted for the firſt time, a bed muſt be made for the generality of them, of the ſame compoſt, with chips of ſtone in the ſame manner thrown underneath; and a few of the choiceſt of them muſt be planted out into ſeparate pots. Theſe pots ſhould be ſmall; there muſt be ſeveral chips of ſtone in the ſame manner thrown into them, and the mould over theſe, the roots muſt be planted at a very ſmall depth; half an inch is the full covering they ſhould be allowed at firſt. Let the plants in the bed be weeded and watered, and theſe in the pots expoſed to the morning ſun, but never to that of noon. In autumn let a little mould be ſifted over them, for they will require to be more covered in winter than ſummer; and thus let them be brought to flower. There will be found many with variegated flowers both in the beds and in the pots; but thoſe in the pots will be the fineſt; and there is a fair chance though not a certainty, that ſome of theſe will have ſtriped leaves.

When a plant of the variegated kind is found, it is to be treated only as the other favourite flowers of this ſowing; every one of which ſhould be taken out of the ground, and planted in a ſmall pot. Stones ſhould be laid in not only under the mould, but mixed among it to prevent the ſpreading of the roots; and thus the plant will be kept in its natural condition of growing.

Every ſummer when the flowering is over, and the leaves are faded, the roots muſt be taken up and parted. The partings may be planted in the borders. The roots preſerved in the pots muſt never be ſuffered to grow too large, and every time they are taken up freſh compoſt muſt be uſed.

Striped Bulbous IRIS. This is an Iris that very well deſerves its place in the beſt gardens: it is inferior to none in beauty, and hardy enough to bear all ſeaſons. The root is bulbous, ſmall, white, and encloſed in ſeveral membranes. The leaves riſe five or ſix together; they are of a freſh green, long, narrow, hollowed, and ſharp-pointed. The ſtalk is round, thick, jointed, and ſurrounded by ſeveral ſtrait leaves, of a paler green than thoſe from the root; it is a foot and a half high, and ſupports, when in its greateſt perfection, only one flower; ſometimes there will be two or three, but they are always inferior to ſuch as are ſupported ſingly on their ſtalks, and of leſs duration; the gardener ſhould therefore pull off the ſecond flower as ſoon as they appear in the bud, that the whole effort of nature may go to the ſupport of the one principal flower.

This Iris has no cup, except ſome light irregular films, which form a kind of ſcabbard can be called by that name. The petals are ſix, three placed upright, and three drooping; and there is the appearance of another ſet of three, but theſe are only the broad appendages of the ſtyle. All the ſix petals unite at their baſe; and from their centre ſpring three filaments, theſe lie upon the drooping petals, and have thin, oblong, ſtrait, depreſſed buttons.

The ground colour of the flower is a pure pearly white. Each of the drooping petals has a ſingular oblong mark, of a lemon yellow in its middle, and theſe as well as the upright ones are ſtreaked with a celeſtial blue in the moſt regular and elegant manner; theſe ſtreaks are in ſome flowers broad, and in others narrow; they are alſo of a deeper colour in ſome than in others. The yellow is ſubject alſo to ſome variation, but it is moſt agreeable when of a pale and delicate hue.

Culture of this IRIS.

A large quantity of the ſeed of this Iris ſhould be ſowed together, which muſt be ſaved from ſtrong plants, and ſuch as have ripened only one flower; this ſhould be ſown juſt when it is thoroughly hardened; and when the plants come up, they muſt be treated in the manner directed for the bulbous Iris's.

Suſian IRIS. The root is tuberous, thick, irregular, and juicy. The leaves are long, moderately broad, and of a freſh green. They riſe ſix or eight together, and ſurround one another at the baſe; they are ſharp at the points and edges, and of a tolerably firm ſubſtance. The ſtalk is a foot and a half high, round, thick, jointed, and of a pale green; and it ſupports a ſingle flower, the largeſt of all the Iris kind; and when nearly viewed one of the moſt elegant. It is compoſed, as thoſe of the other Iris's, of ſix petals, among which appear the three leafy heads of the ſtyle, ſo much reſembling three others, that the flower has been uſually underſtood to be compoſed of nine. Of the ſix proper petals three turn down, and three ſtand upward. The three lower petals are black on their inſide, only there run ſome violet purple lines along theſe from the baſe to the middle; and ſpread themſelves, though leſs diſtinctly, through the reſt. The middle of the petal toward the baſe is black and hairy; and in the centre there is a delicate jetty ſpot, of a velvet appearance. The outſide of theſe petals is of the ſame blackiſh hue, but fainter, often tinged with a duſky purple, and often degenerating into an aſh grey. The three petals which ſtand upright are waved and curled, and they are large but thin. They are of a duſky lead colour; variegated from the baſe to the tops and edges, with fine ſmall lines of black and greyiſh; and there are uſually intermixed among them ſome ſmall duſky ſpots. The three leafy heads of the ſtyle, are divided at their tops, and are of a faint purpliſh tinge, with a great deal of the ſame black hue and the whole flower at a diſtance reſembles the feathers of ſome Indian birds.

Culture of this IRIS.

This plant is eaſily increaſed by parting the roots in autumn, but the beſt method of raiſing it is from ſeed.

The proper compoſt for them is a mixture of equal parts of garden-mould, and rich black earth from under the turf in a meadow. Let ſome ſeeds be ſaved from a very ſtrong plant, which has ſtood under a warm wall. Let them be dried in the uſual manner, and a bed prepared in a ſheltered part of the ſeminary with the compoſt juſt directed. The ſpot muſt be defended from the noon, and open to the morning ſun. On this bed let the ſeeds be ſcattered with an even hand in the latter end of Auguſt, and covered with a quarter of an inch of the ſame mould. When the young plants appear, they muſt be weeded and gently watered, and in the end of September they ſhould be taken up, and planted in another bed at eight inches diſtance. Here they may ſtand till the September following, and then it will be time to remove them into the flower-garden, for they will flower the next year. A place muſt be choſen for them under a warm wall, open to the eaſt and ſheltered from the noon-ſun. A bed muſt be made for them of the above compoſt, and they muſt be planted at eighteen inches diſtance. They muſt be carefully weeded and watered, and the ſucceeding ſummer they will flower.

Let the fineſt be marked while in bloom; and in the September following let the roots be all taken up, and a new compoſt thrown into the place. The inferior kinds may be planted out in the borders of the garden; and theſe finer kinds kept together, in their former place though in a new ſoil. When they have been nurſed in this manner two or three years, they may be increaſed by parting the roots when taken up in autumn for renewing the ſoil; and at the ſame time ſeeds ſhould be ſaved from one or more of the very fineſt flowers, and a new ſtock raiſed.

The old plants are then to be removed into the common borders, as ſoon as the new ſeedlings come to the ſtate of perfect flowering; but the ſame place preſerved for the choicer kinds.

Peach bloom IRIS. This is a very low, but ſhewy plant. The root is tuberous, thick, ſpreading, and whitiſh. The leaves are numerous, and of a very delicate green; broad, ſhort, obtuſe, and highly ribbed. The ſtalk is very ſhort, thick, ribbed, and irregular. The flower ſtands on its ſummit, and is very large. It is compoſed as thoſe of the other Iris's, of ſix petals, and three leafy appendages to the ſtyle; and is of a very fine pale crimſon. The petals are firm, and the whole flower is permanent, and of a very fine violet ſcent. Three of the petals hang more or leſs downward, and the others ſtand upright, and cloſe in upon one another. Toward the baſe of the lower petals is placed a long and large bearded nectarium, and above theſe ſtand the three long heads of the ſtyle. The natural and proper colouring of the flower is throughout a pale red. The three petals which fall downwards are the paleſt: the three which ſtand up have more crimſon; and the three heads of the ſtyle are of a fainter colour than theſe, but have the ſame kind of tinge. This is the proper colouring of the petals: the bearded nectarium is thick, and of a violet blue, and near it there is on each of the lower petals a yellow ſpot.

Culture of this IRIS.

The beſt method of cultivating this plant, is in the manner of the former Iris's, only to give it very little water, and to mix a peck of dry ſand with every buſhel of the compoſt. The method is to ſow a large quantity of ſeed, and among the plants which riſe there will always be a variety of colouring: from theſe the paleſt are to be preſerved for ſeed, and that ſown again. When the plants raiſed from this are of a bigneſs to be brought into the garden, a bed muſt be prepared for them in the ſame place where they may have a great deal of ſun, but not that of the full noon-day: and the compoſt being thus lightened by a mixture of ſand, they muſt be planted at a very ſlight depth, and the ſtirring of the ground about them, muſt in general, ſerve inſtead of watering. The dews will be thus detained in the mould, and they are the proper refreſhment of this delicate flower. But if the ſoil at any time becomes ſo dry that it viſibly declines, a little water muſt be allowed.

Spaniſh Bulbous IRIS. The root of this Iris is conſiderable in proportion to the plant, and in compariſon to the other kinds: it is whitiſh and hung with fibres. The leaves are few but long: they are of a fine freſh green, ſharp-pointed, hollowed, and of a firm ſubſtance. The ſtalk is two feet high, ſlender, of a pale green colour, and not at all branched. The leaves on it are oblong, narrow, and ſharp-pointed: they are naturally of a paler green than thoſe from the root, but often becomes reddiſh, eſpecially the lower ones. One flower terminates the ſtalk, which is extremely delicate: it conſiſts as the other Iris's, of ſix petals, three of which turn downward, three ſtand up, and is furniſhed alſo with three leafy heads to the ſtyle. The univerſal colour is a pale fleſhy red. The three upper petals are pale, the three lower deeper, and each marked with a yellow ſpot toward the end: ſometimes alſo theſe lower petals are ſtreaked with white.

Culture of this IRIS.

This Iris is propagated by ſeeds, in the manner of the reſt, with this difference only, that it requires a ſomewhat poorer compoſt, which will always preſerve it in its natural delicacy.

IRON-WOOD, *Sederoxylum*, a genus of plants, of which there are two ſpecies. 1. Smooth Iron-wood. 2. Iron-wood, with ſpear-ſhaped leaves growing oppoſite. Theſe plants grow naturally at the Cape of Good Hope. The firſt ſpecies has large oval leaves, in ſhape reſembling thoſe of the Bay-tree, but ſmoother and blunter at the end. Theſe are placed on the branches without order, as the branches alſo are produced. The ſtalks are ſhrubby, and riſe five or ſix feet high, ſending out many branches, covered with a dark brown bark.

The ſecond ſort grows more upright and regular; the leaves, which are ſmaller and more pointed than thoſe of the firſt, are placed oppoſite on the branches, and thoſe continue green all the year.

Culture of the IRON-WOOD.

Theſe plants are natives of warm countries, and to preſerve them here they muſt be placed in a warm ſtove.

They are propagated by ſeeds, which muſt be ſown in pots, and plunged into a good hot-bed in the ſpring, in order to get the plants forward early in the ſeaſon.

When the plants are fit to remove, they ſhould be each tranſplanted into a ſeparate ſmall pot, and plunged into a freſh hot-bed. In winter they muſt be placed in the tan-bed in the ſtove, and treated like other tender exotics. As the plants obtain ſtrength, they may be treated more hardily, by placing them in a dry airy glaſs-caſe in the winter, giving them free air in mild weather, but in ſummer they ſhould be placed abroad in a ſheltered ſituation.

IRONWORT, *Sidentis*, a genus of plants, of which there are nine ſpecies: theſe are preſerved in botanic gardens for the ſake of variety, but there is only one of them propagated in other gardens: *viz.* Shrubby, Woolly Ironwort, with heart-ſhaped leaves.

This plant grows naturally in the Canary Iſlands. It riſes with a ſoft ſhrubby ſtalk, five or ſix feet high, ſending out ligneous branches covered with a ſoft down. The leaves are heart-ſhaped, and have long foot-ſtalks. Theſe differ greatly in ſize, according to the age and vigour of the plants; they are very woolly, eſpecially on their under ſide, which is white, but their upper part is of a dark yellowiſh green. The flowers grow in thick whorled ſpikes, at the ends of the branches; their colour is a dingy white.

Culture of the IRONWORT.

This plant is propagated by ſeeds, which ſhould be ſown in autumn: for thoſe which are ſown in the ſpring ſeldom ſucceed, or if they do the plants rarely come up the firſt year. In winter they muſt be ſcreened from hard froſts under a common frame, and in mild weather they may be expoſed to the open air.

ISOPYRUM, a genus of plants, of which there is no Engliſh name, and only three ſpecies. 1. Iſopyrum, with awl-ſhaped ſtipulæ, and acute petals. 2. Iſopyrum, with oval ſtipulæ, and obtuſe petals. 3. Iſopyrum, with obſolete ſtipulæ.

The firſt ſpecies is a native of Siberia, and an annual plant. The ſecond and third grow naturally about Verona, and are biennials.

Culture of the ISOPYRUM.

Theſe plants are propagated by ſeeds, which ſhould be ſown in a ſhady border ſoon after they are ripe; or if the ſeeds are permitted to ſcatter, the plants will come up, and require no other care than to be kept clean from weeds.

There is no great beauty in theſe plants, ſo that a ſmall patch or two of them in any ſhady part of the garden, by way of variety, will be ſufficient.

ITEA, a genus of plants, which has no Engliſh name, and of which there is only one ſpecies.

This ſhrub grows in ſeveral parts of North America, where it riſes to the height of eight or ten feet, ſending out many branches from the ground upward. The leaves are ſpear-ſhaped, ſlightly ſawed on their edges, placed alternately, and of a light green. At the extremities of the ſame year's ſhoots are produced beautiful ſpikes of white flowers, three or four inches long, ſtanding erect. When theſe ſhrubs are in vigour, they will be entirely covered with theſe ſpikes of flowers, ſo that they make an elegant appearance at their ſeaſon of flowering, which is in July.

Culture of the ITEA.

This ſhrub thrives very well in the open air of this climate. It is propagated by layers, which ſhould be the young ſhoots of the ſame year, for the old branches do not put out roots kindly. The ſhoots ſhould be laid down in autumn, and they will take root in one year.

JUDAS-TREE, *Cercis*, a genus of plants, ranged by Linnæus among the *decandria monogynia*, and of which there are only two ſpecies. 1. Judas-tree, with ſmooth rounded leaves, heart-ſhaped at the baſe. 2. Judas-tree, with downy heart-ſhaped leaves.

The root of the firſt ſpecies ſpreads far: the trunk, which riſes to the height of twelve or fourteen feet, is covered with a deep brown bark, and the young twigs are purpliſh. The branches are not numerous, nor do the leaves ſtand thick upon them. Each leaf has a footſtalk, which is purpliſh. The form of the leaf is nearly round, indented a little for the reception of the footſtalk, and at the oppoſite parts terminated often by a kind of point. The colour of the leaves is a deep green, with a tinge of blue: and the veins and ribs in the new leaves are red. The flowers appear early in the ſpring; they riſe on divided foot-ſtalks from every part of the branches, and many times from the ſtem in cluſters. Their colour is a beautiful bright purple, which makes an elegant appearance, eſpecially when the branches are covered thick with the flowers, for they come out in the ſpring with the leaves, and are in full beauty before the leaves have obtained half their ſize. It is a native of the ſouth of France, of Spain, and of Italy.

The ſecond ſpecies grows naturally in moſt parts of North America, where it riſes to a middling ſtature, but with us it ſeldom attains any great height, but branches out near the root. The branches of this are weaker than thoſe of the firſt ſort. The leaves are downy, and terminate in points. The flowers are ſmall, and do not make ſo elegant an appearance as thoſe of the firſt.

Culture of the JUDAS-TREE.

Both theſe ſpecies are propagated by ſeeds, which ſhould be ſown about the middle of March in the ſeminary, upon a piece of ground where the ſoil is light and not too rich. Upon this bed the ſeeds muſt be ſcattered thinly, with an even hand, and half an inch of the ſame mould, ſifted carefully over them, and once in three days they muſt be gently watered, if no rain falls; but if the ſeaſon proves wet, it will be proper to cover the bed with mats to preſerve the ſeeds from it. Some few of the plants will riſe the firſt year, but a greater number the ſecond; for this reaſon the ground ſhould not be diſturbed, till it appears that all the plants are come up: a number of weeds will riſe with them, which muſt be cleared away: and as ſoon as it can be ſeen which are the ſtouteſt plants, let them be thinned by taking up the weaker. When they are thus reduced to a proper diſtance, they muſt have water once in two or three days in ſummer, and the mould muſt be frequently and well ſtirred and broken between them. In winter ſome hoops muſt be placed over the bed, and a mat drawn over it in ſharp weather. This muſt never be ſuffered to remain over the bed longer than there is occaſion; and toward the end of winter it muſt be uſed moſt ſparingly, that the plants may bear the free air of ſpring uninjured.

In the laſt week of the ſucceeding March, let a piece of freſh earth be dug up, and well broke in another part of the nurſery: then remove the young plants very carefully out of their ſeed-bed, and ſet them immediately in the new ſoil at two feet and a half diſtance. Cloſe by each plant thruſt in a ſtrong ſtake, that as the ſtem riſes it may be tied up, to ſecure its growing ſtraight. When the plants are all in, and the ſtakes fixed, bring them gently to their ſupports with a piece of baſs, and give the whole bed a gentle watering: this muſt be repeated twice a week in dry weather. At the approach of winter there muſt be ſome peaſe-ſtraw ſtrown over the ground, to defend them from froſts, and the ſhoot muſt be again tied up as it riſes. In the February following let the earth carefully be dug between them, and at the ſame time let the ſide-ſhoots that grow too low be taken off, and the head left entire. This muſt be repeated the ſucceeding year; and the next after that, they may be tranſplanted into the places where they are to remain.

JUJUBE-TREE, *Ziziphus*, according to Linnæus, a ſpecies of the Rhamnus, but by other authors conſidered as a diſtinct genus.

There are ſeveral ſorts of this tree, which grow naturally in the warmeſt parts of Europe, and in Africa and India.

Culture of the JUJUBE-TREE.

The ſeveral ſorts of this tree are propagated by planting their young ſhoots in pots of light earth, ſoon after the fruit is ripe. In winter the pots muſt be placed under a common hot-bed frame, and in ſpring plunged into a moderate hot-bed.

When the young plants are come up, they ſhould be inured to the open air by degrees, and in June they may be placed under the ſhelter of a warm hedge, where they may remain till the latter end of September, and then they muſt be removed into the green-houſe, or elſe ſet under a hot-bed frame. During the winter they muſt have as much free air as the ſeaſon will permit, and be watered at times, but this muſt be done with the greateſt caution, after they have ſhed their leaves. In the March following, before they begin to ſhoot, they are to be tranſplanted, each into a ſeparate pot of light earth, and they ſhould then be plunged into a moderate hot-bed, and watered and ſhaded till they have taken thorough root; and in May they are to be removed thence into the open air. They muſt be houſed in winter till they are about four years old, and then may be tranſplanted into the naked ground, and will ſtand our winters.

JULUS, or CATKIN. See CATKIN.

JULY, the ſeventh month in the year.

In the flower-garden all weeds muſt be taken up at their firſt appearance, and the ſurface of the borders ſhould often be broken, and raked clean and ſmooth. Obſerve on theſe occaſions to draw up a little mould about the bottoms of thoſe plants, which are coming into flower; the gravel-walks muſt be kept conſtantly rolled, and the graſs frequently mowed. Open the beds in which the ſpring-flowers blowed, whoſe leaves and ſtalks are faded; take up ſuch as are to be planted again immediately: give a freſh ſoil, or dig up the old thoroughly.

Thoſe roots, which are to be kept out of the ground till autumn, muſt be cleaned, ſpread upon a mat, and turned till they are hardened. The others muſt be cleared, their off-ſets taken away, and the ground being made up, they muſt be planted again as at firſt. Great care muſt be taken of the layers of Carnations, Pinks, Sweet-williams, and other flowering plants. The plants coming into flower muſt be watered freely. Take particular care of thoſe plants intended for ſeed: and as the heads or pods harden cut them off, and lay them upon a proper ſhelf to dry; and where there are many kinds, divide every ſhelf by ledges of the ſame paper, into ſeveral partitions. The biennials ſown late in the ſpring, will require tranſplanting about the end of this month. Look over all thoſe ſummer plants which produce a great many flowers: to continue theſe in ſucceſſion, they muſt be prevented from ripening of ſeeds. Keep a watchful eye upon the cuttings of exotic plants: they will require watering and ſhading, but both in moderation. All tranſplanting about this time of year, muſt be done in the evening about ſun-ſet, the waterings will take more effect, if given an hour or two before.

In the *Seminary*, the beds of ſeedlings will now be ſcorched up by the ſun, unleſs ſhaded by reed hedges, or ſome other ſhade at noon; and the earth will be ſo dried up, as to require frequent waterings both in theſe beds, and wherever elſe there are new planted trees or ſhrubs, not ſufficiently eſtabliſhed. Continue inoculating the ſeveral kinds of Peaches, Nectarines, and Cherries, in ſucceſſion, according to their ſeaſons. In this part of the ground, the growth of the weeds will require continued and repeated care, and particularly among ſeedlings.

Inoculate Plums and Pears in this month. Look over thoſe which were inoculated firſt; and looſen the bandages a little, to give a free courſe to the ſap. The ſeedlings not yet removed out of their firſt beds, will require alſo ſhading from the extreme heat of the ſun. Obſerve to go round the ground where thoſe ſtand, that are of a more advanced growth; and with a knife reduce them to order. Evergreens require the ſame care. Layers which were in the ground laſt month, will now require great care: keep them ſecurely in their places, and repeat the waterings.

Weed and water young exotic trees particularly thoſe of the reſinous kinds, which were planted out of their ſeed-beds ſome weeks before. Tranſplant evergreens about the end of this month. Let the whole ground be cleared from weeds, and the young plantations watered.

In the *Fruit-garden* the ſame care is required of thoſe fruit-trees which have been newly planted in the garden or orchard, as of thoſe in the ſeminary. After their tranſplantations, look to their faſtenings, whether by nailing to walls, or by tying up to poles. If they rock at the roots they will periſh. Let them be tied or nailed up more ſecurely; let the mould be broke about them, and cloſed at the bottom of the ſtem, and they muſt have frequent waterings. If theſe do not give perfect vigour, let a little dung be added to the mould and marſhed in by repeated and large waterings. Care muſt now be taken of the ſtandard-vines. The free paſſage of the air between, and among fruit-trees, is an eſſential article towards their obtaining their true flavour; break up the ſurface of the mould in the fruit-tree borders, with the three-pronged fork; but it ſhould be done lightly and ſuperficially. As ſoon as this is done, allow a gentle watering, and let this be given at a diſtance from the ſtem. Inſects are now abundant upon fruit trees.

Phials of ſyrup are to be hung upon the trees, but theſe are only baits for flies and waſps. The caterpillar, which preys upon the leaves, is a more terrible enemy. The moſt miſchievous are the ſingle green kind; they are ſmall but they devour immoderately. When they are ſituated at the end of a branch, there appears a round lump in the place. This diſcovers them, but if let alone a very little time, they eat off the part where they are thus concealed; and this not only hurts the preſent fruit, but deſtroys the branches for the ſucceeding year.

From the trees beginning to bud, to the fruits ripening, they ſhould be ſought after, upon the ends of the young ſhoots; afterwards upon and among the bloſſoms, which they often faſten together by a kind of web; and at laſt among the fruit, or upon the back of the leaves. If any fruit-trees againſt the walls are not of the deſired kind, they ſhould be inoculated upon the tender ſhoots. Let the gardener look over the trees at noon, for the deſtruction of waſps and flies; and in the morning and evening, for that of the ſnail, ſlug, and other creeping inſects.

In the *Kitchen-garden*, about the beginning of this month, plant the late crop of French-beans, in a part of the ground open to the noon-ſun, and defended from the eaſt and north. Weeding and watering muſt be continued at this time throughout all the kitchen-ground. Endive and Celery that have been planted out for blanching, muſt be conſtantly and regularly ſupplied with water. The Lettuces require the ſame refreſhment; and for both theſe crops great care is required to protect them from the ſlugs or naked ſnails; theſe muſt be deſtroyed every morning and evening, and after ſhowers. Clear the ground where thoſe crops have ſtood, which are now gathered off; and prepare it for ſuch others as are fit for tranſplanting. Always let a few days be allowed between the clearing off the remains of an old crop, and planting a new one. Water the various growths.

The kitchen-garden which has been properly managed, abounds at this time with crops of ſeedlings, and others that have been tranſplanted into their ſecond or third beds. The ſucceſs of all theſe depends, in a great meaſure, upon moiſture: where weeds have riſen, they muſt be again carefully deſtroyed, eſpecially among the tranſplanted crops.

This is the time for ſowing the turnep-rooted radiſh. Onions, intended for winter uſe, will be fit for taking out of the ground. A piece of ground cleared of theſe will, with a little refreſhment, perfectly ſuit the radiſhes; and the two works may be done in a proper ſucceſſion. About the end of this month dig a piece of ground and ſow Colewort-ſeeds for the ſucceeding ſpring. Dig another piece for tranſplanting of Brocoli. Particular care ſhould be taken at this time of the Melons.

In the *Green-houſe*, the new raiſed plants will by the beginning of this month, require to be removed into large pots: theſe new pots muſt continue in their ſhaded ſituation, till the plants are perfectly rooted, and have recovered the check from the removal. They muſt then be brought to the place where the other green-houſe plants are ſet out for the ſummer. Take off cuttings from the Euphorbiums, Meſembryanthemums, and other ſucculent plants for propagating them. Lay theſe upon a ſhelf in an airy room, and turn them for ſeveral days. Look over the Orange-trees.

In the *Stove* the degree of heat muſt be very well regulated by the thermometer, and the bark-bed where it is found neceſſary refreſhed. The generality of plants in the ſtove will at this time require as much free air as can be conveniently admitted: and thoſe which are moſt expoſed will be ſcorched, unleſs the glaſſes be ſhaded in the middle of hot days. Pine-Apple plants will at this time require great care; the fruit will be ripening faſt upon them. The plants from which this fruit is cut will readily produce ſuckers, and thoſe which come earlieſt are vaſtly the beſt, for they will be got off before winter.

JULY-FLOWER, Carnation. See the article CARNATION.

JUNE, the ſixth month of the year.

In the *Flower-garden*, get into the open ground, about the beginning of this month, the remainder of the annuals raiſed in hot-beds. The beginning of this month is alſo a proper time for propagating the common green-houſe plants, by cuttings; and it is alſo for propagating ſucculent plants by their cuttings. Look over the Anemonies, and other kinds intended for ſeeds: once a week break the ſurface of the beds about them; and every two or three days allow a moderate watering. Now propagate fibrous rooted flowers by layers, and begin by Carnations and Pinks. Look to theſe layers every other day, and ſee they all keep in their due place; and when the mould is dry you muſt give them a gentle watering.

The roots of ſuch of the bulbous, and tuberous ſpring-flowers, as have their leaves now decayed muſt be taken up, cleaned, and laid to harden: many of the Ranunculuſes, Anemonies, and Tulips are about the middle of June ready for this. Obſerve where the tuberous rooted flowers and bulbs, that will not bear to be kept long out of the ground: they muſt be taken up and planted in new mould. About this time if the weather proves dry, take out of the ground the Hyacinth roots, which were laid ſide-ways under the mould for ſwelling.

Examine the Carnations from day to day as they are ſwelling for the flower.

The ſpring, perennial, fibrous-rooted plants, which have done flowering, muſt be cut down, near the ground, and ſome mould drawn up over the ſtumps: cut ſome ſticks of different lengths, and tie up to them the ſtalks of thoſe plants which are yet to come into flower. Let ſome mould after this be drawn about the head of the root, and the dead leaves taken away. Tranſplant out of the ſeed-beds the perennial fibrous-rooted flowers, as alſo the biennial kinds. Inoculate the ſeveral kinds of Jaſmine; deſtroy weeds with great care, as this month is their ſeed-time. Dig about thoſe plants which are to flower in autumn, and let them have moderate waterings. Cut off ſtraggling branches; tie up the reſt with the main ſtem, and form the ſpreading plants into good heads. Inoculate the finer ſort of roſes which do not freely produce ſuckers. Take off ſuch flowers as are paſt their beauty, and give theſe plants every evening a gentle watering: next examine thoſe which are opening for ſeeds; if any new bloom offers upon theſe take it off: flowers at this time will not be fine, yet they will ſtarve and hurt the ſeeds. Stir the mould about the plants with a trowel; and if the ſeeds be young, allow gentle waterings; but thoſe plants which are full grown, muſt not have any. See the ſticks to which theſe are tied up, ſtand firm and ſecure; then paſs to thoſe autumnal kinds, which are coming to their growth, and preparing for flowering. Part of theſe are the annuals removed out of the hot-beds, and part the ſeedling biennials of the laſt autumn from the nurſery. Sticks have been thruſt down by theſe, proportioned to the heights of the plants; when they come to flowering, as they have riſen above the laſt tyings, let them be now faſtened up again. If there be any ſtraggling branches, let them be removed; then give a full free watering to the leaves, buds and ſoil: if any are full grown, let the head of the ſticks be cut off to the level of their top branches; then let the earth be drawn up about the ſtem, and the plant is in perfection for flowering. While the buds remain unopened, the waterings muſt be large and given all over the plant; but when the flowers open, they muſt be more moderate.

In the *Seminary* look to the beds and boxes of ſeedling ſpring flowers. The leaves will be decayed by this time, and their tender roots muſt be refreſhed by a covering of the ſame mould: let the ſurface of the whole bed or box be gently raked, to gather up all moſs or ſeedling-weeds, in performing which the greateſt care muſt be obſerved not to diſturb the young roots of the plants. After this an inch deep of the ſame mould ſhould be ſifted over them; and they are to remain ſo the reſt of the ſummer.

Let the beds be always weeded by hand, and care taken not to diſturb the young plants. After this they muſt be watered every evening; and it will now be proper to defend them from the noon-ſun by a reed-hedge. Where the trees are of more growth, and planted out in rows at due diſtances, nothing is ſo proper as digging between them with a ſpade. Lay the branches of the Paſſion-flower, Clematis, and other ſuch ſhrubs: the mould muſt be kept moiſt by frequent waterings. Chuſe branches which can be brought down with the leaſt force, and let them be twiſted and pierced through with an awl in ſeveral places, where they are to come under the mould: cover them four inches, and peg them down in two or three places, that neither the ſpringineſs of the branch itſelf, nor the force of the wind, may endanger the tearing it up. The flowers which were ſown in April will now be grown to proper ſize for tranſplanting. Plant cuttings of hardy ſhrubs, and trees in the open ground. Hardy exotic trees may be laid about the middle of this month for an increaſe. Go over the evergreens with a knife, reducing the rude growth of branches: their ſtems muſt be covered, and this can only be done by taking off the luxuriant growth of the young ſhoots.

Continue weeding and digging between and about the new planted trees, throughout the ground; and if the ſeaſon be dry, they muſt be watered. Plant cuttings of fibrous-rooted plants, cloſing the mould about them, and allowing good watering. Water the ſeedlings of hardy exotic trees, but this muſt be done with great caution: inoculate the earlier Peaches and Nectarines, toward the end of this month.

In the *Fruit-garden.* About the beginning of this month look over the ſtocks for inoculating of ſtone-fruits, and mark ſuch as are for the earlier kinds. Look over all wall-fruit trees, where any leaves are decayed, take them off; where fore-right ſhoots have been produced, rub theſe off alſo; and where ſuch grow in a better direction, as will be wanted the ſucceeding year, bring them to order, fixing them to the wall, taking care not to diſturb the fruit, nor even hurt the leaves. Extirpate weeds from the ſtems of fruit-trees. Thin the fruit; dig the borders with a three-pronged fork; and rake the borders after this digging, to take off the weeds; and if the trees require more aſſiſtance, ſpread ſome rich mould with ſoot an inch thick, all over the border. Eſpaliers muſt be treated in the ſame manner as the wall-trees; and when the ill-growing ſhoots are rubbed off, and thoſe which are wanted, and which are riſen in proper places duly trained, digging, clearing, and enriching the border, is to be repeated. About the middle of this month, let ſome of the later Apricots be inoculated, and the earlier Peaches. Look to new planted trees ſecured by ſtakes, and thoſe againſt walls and eſpaliers; if they rock about now they will ſoon be deſtroyed. The new ſhoots of wall and eſpaliers trees, that grow properly, muſt be faſtened down in different places. Look frequently over the fruit-trees: thoſe which appear leſs vigourous than the others muſt be refreſhed by turning up the mould about their roots, with a three-pronged fork, and it will be ſerviceable to ſprinkle on a little rotten dung, and work it into the ground, by repeated, and not too ſlight waterings. If any leaves are infeſted with inſects, let them be pulled off.

Care muſt be taken to deſtroy ſnails and all other inſects. Clear the vines planted againſt the walls of weak and uſeleſs branches: let all ſide-ſhoots be diſplaced. Rub off fore-right ſhoots; train and keep in their proper places, thoſe which have been ſuffered to remain, from more proper parts of the wood. Dig and water the ground, and keep the ſtems of trees perfectly clear from moſs.

In the *Kitchen-garden.* Let the weeds be every where deſtroyed by the hand, by the hoe, or by the ſpade, according to the condition of the ſeveral crops, among which they grow; and as the ſeeds of many weeds will ripen as they lie on the ground, and by means of the down annexed to them, be carried every where about the garden, let care be taken to prevent it. When the crops are cleared, let them have a moderate watering. Plant new crops upon the piece of ground cleared from the early growths, firſt enriched by ſome good old dung well laid in. Upon a piece of ground thus prepared, ſow ſome Brocoli for a ſecond crop: dig another piece of the ſame ground to plant ſome French-beans; lay out a piece of ground for blanching of Celery. Tranſplant Cabbages and Savoys for winter-uſe. The Cos-lettuces which are in condition for gathering, muſt be taken up from time to time: mark ſome for ſeed. Chuſe an open ſpot of ground for tranſplanting a good crop of ſeedling Endive. Tranſplant the young Cauliflower-plants raiſed for winter. Sow Cabbage-lettuces for a late crop. Tranſplant the ſeedling Brocoli. The late crop of Cucumbers in holes for pickling, will be now up, and require ſome care.

About the middle of this month Melons will ſet for fruit. Plant out the ſweet herbs that have been raiſed from ſeed. Young ſallading may be raiſed in as great perfection at this time as at any other. Chardoons will now be fit for planting out, to be blanched: ſave ſeeds from ſuch crops as now ripen them; let the young crops be weeded and watered. About the end of this month dig two pieces of ground for Celery and Endive.

In the *Green-houſe.* Look to the plants which are now ſet out for ſummer; ſtir the earth on the ſurface in all the pots, and where there is occaſion, bring in a little freſh, ſpreading it over the ſurface, and gathering it up about the ſtem. Pick off dead or decaying leaves, rub and waſh away any foulneſs from the ſtem, and even upon the leaves of thoſe which have large ones: and according to the condition and nature of the plants, let them have the benefit of watering. The Orange-tree, which is the principal glory of a common green-houſe plant, now requires particular attention. When flowers break out upon a plant that is ripening its ſeed, they ſhould be deſtroyed, and whatever buds offer for flowering, ſhould be pulled off as ſoon as ſeen.

In the *Stove*. There is no ſeaſon of the year in which cleanlineſs is more neceſſary than this month, in which the plants are more ſubject to filth upon their ſtems, and inſects upon their tender ſhoots and leaves. A ſponge and warm water muſt be uſed, and if the diſorder be great, the water muſt be impregnated with tobacco ſtalks and ſoot: every part muſt be cleaned with this, the young ſhoots and leaves with the ſponge, and the ſtems with a ſmall bruſh firſt, and afterwards with a flannel dipt in the ſame water. What began in the bark-bed, muſt be continued throughout the whole ſtove.

JUNIPER, *Juniperus*, a genus of plants, ranged by Linnæus among the *diœcia monodelphia*, and of which there are thirteen ſpecies. 1. Juniper, with ſpreading, ſharp-pointed leaves, placed by threes; or the common Juniper. 2. The Tree; or Swediſh Juniper. 3. Cedar of Virginia; or Red Cedar. 4. Juniper, commonly called Carolina Cedar. 5. Juniper, commonly called Cedar of Bermudas. 6. Great Juniper, with blue berries. 7. Greater Juniper; or Cedar with a Cypreſs-leaf, and yellowiſh fruit. 8. Middle Juniper; or Cedar with a Cypreſs-leaf, and larger berries. 9. Greateſt Juniper, with a Cypreſs-leaf; commonly called Jamaica berry-bearing Cedar. 10. Common Savin. 11. Upright berry-bearing Savin. 12. Great Juniper, with a browniſh berry. 13. Taller Spaniſh Cedar, with a very large black fruit.

The firſt ſort grows naturally upon chalky lands in many parts of England. This is a low ſhrub, ſeldom riſing more than three feet high, ſending out many ſpreading branches, covered with a brown bark, decorated with narrow awl-ſhaped leaves, ending in acute points, placed by threes round the branches, which are of a greyiſh colour and continue through the year; the male flowers ſometimes are ſituated at diſtances on the ſame plant with the female, at other times they are upon diſtinct plants: the female flowers are ſucceeded by roundiſh berries, which are green, but when ripe are of a dark purple colour; the berries ripen in the autumn.

The ſecond ſort is known in the gardens by the title of Swediſh Juniper. This riſes to the height of ten or twelve feet, the branches grow more erect, the leaves are narrow, and end in more acute points: they are placed farther aſunder on the branches, and the berries are larger than thoſe of the firſt ſpecies. It grows naturally in Sweden, Denmark, and Norway.

The third ſort grows naturally in moſt parts of North America, where it is called Red Cedar, to diſtinguiſh it from a ſort of Cypreſs, which is there called White Cedar: of theſe there are two, if not three varieties, beſides the ſpecies here enumerated, one of which has leaves in every part like thoſe of the Savin, and upon being rubbed, emit a very ſtrong ungrateful odour, and is commonly diſtinguiſhed in America by the title of Savin-tree. There is another with leaves very like thoſe of Cypreſs: but as theſe generally ariſe from the ſame ſeeds when they are ſent from America, ſo they are only ſeminal variations.

The lower leaves of the fourth ſort are like thoſe of the Swediſh Juniper, but the upper leaves are like thoſe of the Cypreſs: and this difference is conſtant, when the ſeeds are carefully gathered from the ſame tree; but as moſt of thoſe people who ſend over theſe ſeeds, are not very careful to diſtinguiſh the difference, ſo it often happens that the ſeeds of two or three ſorts are mixed together, which has given occaſion to people to imagine them but one; but all the leaves of the third ſort are like thoſe of the Juniper, ſo the gardeners call that the Red Virginia Cedar, and this Carolina Cedar, though they grow naturally in Virginia.

The fifth ſort is the Bermudas Cedar, whoſe wood has a very ſtrong odour.

Theſe plants, while young, have acute-pointed leaves, which ſpread open, and are placed by threes round the branches; but as the tree advances, ſo their leaves alter, and the branches are four-cornered; the leaves are very ſhort, and placed by fours round the branches: theſe are of a dark red colour, inclining to purple.

The ſixth ſort grows naturally in Iſtria. This has ſpreading branches growing thinly decorated with awl-ſhaped, acute-pointed leaves, placed by threes, of a dark green, and not very cloſe to each other: they grow horizontally, pointing outward: the berries are much larger than thoſe of the common Juniper, and are blue when ripe.

The ſeventh ſpecies grows naturally in Portugal. This ſort grows with its branches in a pyramidal form: the lower ones are decorated with ſhort, acute-pointed, greyiſh leaves, placed by threes, pointing outward: but thoſe on the upper branches are of a dark green, lying over each other like the ſcales of fiſh, ending in acute points. The male flowers are produced at the extremity of the branches: they are ſituated in a looſe, ſcaly, conical katkin, ſtanding upon ſhort foot-ſtalks erect; the fruit is produced ſometimes upon the ſame tree, at diſtances from the flowers, and at other times they are upon ſeparate trees; the berries of theſe are of a pale yellow when ripe, and about the ſize of theſe of the common Juniper.

The eighth ſort grows naturally in Spain and Italy. The branches of this ſort grow erect, and are covered with a brown bark. The leaves are ſmall, obtuſe, and lie over each other like the ſcales of fiſh. The male flowers grow at the extremity of the branches in a conical katkin, and fruit grows ſingle from the ſides of the branches below the katkin, on the ſame branch. The berries are large, oval, and when ripe are brown.

The ninth ſort grows naturally in Jamaica, and alſo in the other iſlands of the Weſt-Indies, where it riſes to be one of the largeſt timber trees in thoſe countries. The branches ſpread wide, and the leaves are extremely ſmall. The bark is rugged, of a dark colour, and ſplits off in ſtrings. The fruit is ſmall, and of a light brown colour when ripe.

The tenth ſpecies is the common Savin. This grows naturally in Italy, Spain, and the Levant, upon the mountains where it is cold. It ſends out its branches horizontally, and ſeldom riſes more than four or five feet high. The leaves are very ſhort, acute-pointed, placed oppoſite, and their ends point upward. This ſort ſeldom produces either flowers or ſeeds, when it is tranſplanted into gardens. The berries are ſmaller than thoſe of the common Juniper, but of the ſame colour and a little compreſſed. The whole plant has a very rank ſtrong odour when touched.

The eleventh ſort has been by many, ſuppoſed to be only an accidental variety of the former, but the difference between them is very conſpicuous: for the branches of this grow more erect, the leaves are ſhorter, and end in acute points which ſpread outward. It grows naturally on the Alps, where it riſes to the height of eight or ten feet, and produces great quantities of berries.

The twelfth ſpecies grows naturally in Spain, Portugal, and the ſouth of France. It riſes ten or twelve feet high, ſending out many ſmall taper branches without angles, the whole length of the ſtem. The leaves are ſmall, obtuſe, and lying over each other like the ſcales of fiſh. The male flowers are ſituated at the ends of the branches in conical ſcaly katkins, and the berries grow below from the ſame branches. Theſe are larger than thoſe of the common Juniper, and when ripe are brown.

The thirteenth ſort is a native of Spain and Portugal, where it riſes from twenty-five to thirty feet high, ſending out many branches which form a pyramid. The leaves are acute-pointed, and lie over each other four ways, ſo as to make the branches four-cornered. The berries are very large and black when ripe.

Culture of the JUNIPER.

Theſe plants are all propagated by ſeeds, and ſuch as will bear the open air of our climate ſhould be ſown as ſoon as they are ripe, if they can be procured; for when they are kept out of the ground till ſpring, they will not come up that year. The ground in which the ſeeds of the hardy ſorts are ſown, ſhould be freſh and light, and not dunged: it muſt be well dug, levelled even, and the ſeeds ſhould be ſown thereon pretty thick, and let the earth be ſifted over them about an inch thick. This bed will require no other care than to be kept clean from weeds, and in dry weather refreſhed with water; and if the bed is much expoſed to the ſun, it ſhould be ſhaded with mats in the day. In this bed let the plants remain till the ſecond autumn, when ſome beds muſt be prepared to tranſplant them in: theſe ſhould be of ſuch earth as the former, levelled, and cleared from weeds and roots. About the beginning of October the plants ſhould be removed, with as much earth as poſſible to their roots, and planted into thoſe beds, about five or ſix inches each way, and watered. Here they may remain two years, taking care to keep them clean from weeds. In the ſpring the ground muſt be ſtirred gently between them: after which they ſhould be tranſplanted either into a nurſery, at the diſtance of three feet, row from row, and eighteen inches aſunder in the rows: or into the places where they are to remain for good.

In order to have theſe trees aſpire in height, their under branches ſhould be taken off, eſpecially where they are inclined to grow out ſtrong: but they muſt not be kept too cloſely pruned, which would retard their growth; for all ever-greens do more or leſs abound with a reſinous juice, which is very apt to flow in hot weather, in ſuch plenty from the places which are wounded, as to render the trees weak and unhealthy.

The more tender ſpecies of this genus are alſo propagated by ſeeds, which muſt be procured from the countries where they grow naturally.

The Bermudas Cedar and the Jamaica Juniper will not live through the winter in the open air of our climate; the ſeeds muſt therefore be ſown in pots, and plunged into a moderate hot-bed. When the plants come up, they muſt each be removed into a ſeparate pot, and after they have taken freſh root, they muſt by degrees be inured to the open air, but always obſerve to houſe them in winter.

The ſeeds of the reſt may be ſown as was directed for the hardier ſorts. When the plants come up they muſt be carefully weeded, and in dry weather ſhould be refreſhed with water, which will greatly forward their growth; the autumn following they ſhould have a little rotten tan laid between them to keep out the froſt. In this bed the plants may remain for two years, then they ſhould be tranſplanted into other beds for two years more, obſerving all the time to keep them clean from weeds; and in winter lay a little freſh mulch upon the ſurface of the ground round their roots, which will prevent the froſt from penetrating to them, and effectually preſerve them: for while the plants are young, they are liable to be injured by very hard froſts: but when they have attained a greater ſtrength, they will reſiſt the ſevereſt cold of our climate.

After two years they ſhould be either removed into a nurſery, or tranſplanted where they are deſigned to remain, always obſerving to take them up carefully, otherwiſe they are ſubject to fail upon tranſplanting: and alſo to mulch the ground and water them, till they have taken root; after which they will require no other care than to keep the ground clean about their roots, and to prune up their ſide branches to make them aſpire in height.

JUPITER's BEARD, *Barba Jovis*, a ſpecies of Anthyllis.

This is a ſhrub which often grows ten or twelve feet high. The leaves are hairy and very white, for which reaſon it is called by many Silver Buſh. The flowers are ſituated at the extremities of the branches, collected into ſmall heads; their colour is a bright yellow, and they appear in June.

Culture of JUPITER's BEARD.

It is propagated either by ſeeds or cuttings: if by ſeeds they ſhould be ſown in the autumn, in pots filled with light earth, and placed under a frame in winter to protect them from froſt. The following ſpring the plants will riſe: and when they are ſtrong enough to remove, they ſhould be each planted in a ſmall pot filled with light earth, and placed in the ſhade till they have taken new root: after which they may be placed with other hardy exotic plants in a ſheltered ſituation, where they may remain till October, when they muſt be removed into the green-houſe.

If it is propagated by cuttings, they may be planted in pots during any of the ſummer months, obſerving to water and ſhade them till they have taken root, after which they may be treated as directed for the ſeedling plants.

JUSSIŒA, a genus of plants, for which we have no Engliſh name: there are five ſpecies of it. 1. Upright hairy Juſſiœa, with four-leaved flowers on foot-ſtalks, and eight filaments in each. 2. Hairy Juſſiœa, with an erect branching ſtalk, flowers having five petals, and ten ſtamina, which ſit cloſe to the ſtalks. 3. Smooth upright Juſſiœa, with four petals, and eight ſtamina to the flowers, which ſit cloſe to the ſtalk. 4. Juſſiœa, with an upright, branching, ſmooth ſtalk, flowers having four petals, and eight ſtamina ſitting cloſe to the ſtalk, and ſpear-ſhaped leaves. 5. Juſſiœa, with a ſingle, upright, hairy ſtalk, ſpear-ſhaped leaves, flowers which have five petals, and ten ſtamina ſitting cloſe to the ſtalk.

The root of the firſt ſpecies is white, and hung with innumerable fibres. The ſtem is firm and almoſt woody: the height three feet, and the branches numerous. The main ſtem has the remains of four ridges, and the younger ſhoots are abſolutely ſquare. The bark is brown, with a tinge of red on the older parts, but on the younger it is pale: and the young ſhoots are lightly hairy. The leaves are numerous, and of an elegant form, oblong, moderately broad, undivided at the edges, and ſharp-pointed; they ſtand alternately on the branches, and they have very ſhort foot-ſtalks: thoſe on the extreme parts none; they are broadeſt toward the middle, and truly lanceolate. Their colour is a ſtrong green on the upper ſide, and a faint or whitiſh green below: and they are lightly hairy, ſoft to the touch, and of a tender ſubſtance. The flowers are ſmall and of a delicate yellow; they ſtand in the boſoms of the leaves, the rudiments of the fruit ſerving in the place of foot-ſtalks. Each flower has its cup: this ſtands together with it on the rudiment, and is ſmall, and compoſed of four little oval pointed leaves, which cohere at the baſe, and remain after the flower is fallen. The body of the flower is compoſed of four roundiſh petals, which ſpread wide open, and the filaments are eight: they are ſhort, and they have roundiſh buttons. The ſtyle is ſingle and ſlender, and its head is thick, and marked with five ridges. The ſeed-veſſel is oblong, thick, crowned with the cup, and filled with numerous ſeeds in ſeveral ſeries. It is this ſeed-veſſel, which throughout the whole time of the plants flowering, makes ſo conſpicuous a figure. It is an inch in length, and has the ridges ſlight, and the crown large. They are of a pale green at firſt, afterwards of a deep brown: and they reſemble in this laſt condition extremely, the common Clove Spice.

The ſecond ſort grows naturally in Jamaica. This riſes with a hairy branching ſtalk two feet high, with narrow ſpear-ſhaped leaves, placed alternate. The flowers are ſituated toward the ends of the branches, and ſit cloſe to the ſtalks; they are compoſed of five large yellow petals.

The third ſpecies is alſo a native of Jamaica. It riſes with a ſmooth erect ſtalk, three feet high. The leaves are long, narrow, ſmooth, and ſpear-ſhaped. The flowers are large and yellow..

The fourth ſpecies grows near Carthagena. It has a branching ſmooth ſtalk, three feet high. The leaves are heart-ſhaped, and ſtand upon ſhort foot-ſtalks. The flowers are ſmall, yellow, and compoſed of four petals.

The fifth ſpecies is a native of La Vera Cruz. It riſes with ſingle, upright, red, hairy channelled ſtalks, three feet high. The leaves are ſpear-ſhaped, and placed alternate, ſtanding nearer together than in any of the other ſorts. The flowers appear from the wings of the leaves on the upper part of the ſtalk, and are compoſed of five large yellow petals.

Culture of the JUSSIOEA.

All theſe ſorts are propagated by ſeeds, which ſhould be ſown early in the ſpring, on a moderate hot-bed. When the plants come up and are fit to remove, they ſhould be each planted in a ſeparate ſmall pot, and plunged into a hot-bed of tanners bark, where they ſhould be ſhaded from the ſun till they have taken new root, after which they ſhould have free air admitted to them every day, in proportion to the warmth of the ſeaſon.

When the roots of the plants have filled theſe ſmall pots, they ſhould be tranſplanted into others, a ſize larger; and if the plants are too tall to ſtand under the frames of the hot-bed, they ſhould be removed into the bark-ſtove, where they may remain to flower, and perfect their ſeeds; for when the plants riſe early in the ſpring, and are brought forward in hot-beds, all the ſorts will flower and perfect their ſeeds the ſame year.

JUSTICIA, a genus of plants, of which there are eight ſpecies. 1. Juſticia, with oblong, oval, hairy leaves, ſitting cloſe to ſtalks, and flowers growing in ſpikes from the ſides of the ſtalks, which are ſhrubby. 2. Juſticia, with an erect branching ſtalk, having ſix angles, oval leaves placed oppoſite, and wedge-ſhaped, ſmall leaves growing in cluſters. 3. Juſticia, with oval, ſpear-ſhaped leaves, growing on foot-ſtalks, heart-ſhaped, acute-pointed bracteæ, and a ſhrubby ſtalk. 4. Tree Juſticia, with oval, ſpear-ſhaped leaves, oval permanent bracteæ, and a concave helmet to the flower; commonly called Malabar Nut. 5. Shrubby Juſticia, with entire, ſpear-ſhaped leaves, footſtalks having three flowers looking different ways, and bracteæ ſhorter than the empalement; commonly called Snap-tree. 6. Prickly Juſticia, with oblong, oval leaves, indented at their edges, and a ſhrubby branching ſtalk. 7. Tree Juſticia, with ſpear-ſhaped, oval leaves, woolly on their under ſide, ſitting cloſe to the ſtalks, and ſpikes of flowers growing in cluſters, at the ends of the branches. 8. Tree Juſticia, with ſpear-ſhaped, oval leaves, oval pointed bracteæ, which fall off, and a reflexed helmet to the flowers.

The firſt ſpecies grows naturally at La Vera Cruz, where it riſes with a ſhrubby brittle ſtalk five or ſix feet high, and ſends out many branches. The leaves are oval, oblong, hairy, and placed oppoſite. At the wings of the leaves are placed the ſpikes of flowers; they are large, of a fine red colour, and are ſucceeded by pods about half an inch long.

The ſecond ſpecies is a native of the ſame place. It has an upright ſhrubby ſtalk, with ſix angles, which riſes from two to three feet high, dividing into many branches. The leaves are oval, and placed oppoſite. At each joint appear cluſters of ſmall wedge-ſhaped leaves, or bracteæ. The flowers are ſituated in ſmall ſpikes at the ends of the branches, ſitting very cloſe among the leaves; they are compoſed of one petal, which has two lips: the upper lip is arched, bending over the lower, which is alſo a little reflexed, but both are entire. Their colour is a beautiful carmine: and they are ſucceeded by ſhort wedge-ſhaped capſules, opening lengthways, and incloſing two ſmall oval ſeeds.

The third ſpecies, which is a native of Campeachy, riſes with a hairy, ſhrubby ſtalk, four or five feet high, dividing into ſeveral branches. The leaves are oval, ſpear-ſhaped, hairy, and ſtand upon oppoſite foot-ſtalks. The flowers appear in looſe cluſters from the wings of the ſtalks, toward the ends of the branches: they are of a pale red colour, and ſhaped like thoſe of the former ſort.

The fourth ſpecies is a native of the iſland of Ceylon, and has been long known in our gardens by the title of Malabar Nut. It riſes here with a ſtrong woody ſtem to the height of twelve or fourteen feet, ſending out many ſpreading branches. The leaves are oval, ſpear-ſhaped, ſix inches long, and three broad, and placed oppoſite. The flowers are placed at the ends of the branches on ſhort ſpikes; their colour is white with ſome dark ſpots, but they are not ſucceeded by any ſeeds in England.

The fifth ſpecies is a native of India, and riſes with a ſhrubby ſtalk from three to four feet high, branching out on every ſide from the bottom, ſo as to form a kind of pyramid. The leaves are ſpear-ſhaped, ſmooth, ſtiff, entire, near two inches long, one third of an inch broad, of a deep green, and ſtanding oppoſite. At the baſe of the foot-ſtalks are ſituated cluſters of ſmaller leaves, of the ſame ſhape and texture. The flowers appear upon ſhort foot-ſtalks, from the ſides of the branches, each foot-ſtalk ſupporting one, two, or three white flowers, with long empalements, theſe are ſucceeded by oblong ſeed-veſſels, which when ripe, caſt out their ſeeds with great elaſticity, from whence it had the appellation of Snap-tree.

The ſixth ſpecies is a native of Jamaica. It riſes with many ſhrubby ſlender ſtalks, about five feet high, ſending out branches on every ſide, which are covered with a whitiſh bark. The leaves are ſmall, oval, oblong, and are placed oppoſite. Under the leaves, at every joint, are placed two ſharp thorns. The flowers appear ſingly at the wings of the leaves; they are ſmall, of a pale red colour; and ſhaped like thoſe of the other ſorts.

The ſeventh ſpecies, which is a native of Campeachy, riſes with a ſtrong woody ſtem twenty feet high, dividing into many crooked irregular branches, covered with a light brown bark. The leaves are ſpear-ſhaped, oval, near four inches long, two broad, and covered on their under ſide with a ſoft down. The flowers grow in ſpikes at the ends of the branches; three, four, or five of theſe ſpikes ariſing from the ſame point, the middle ſpike being near three inches long, and the others about half that length. The flowers are ſmall and their colour is white.

The eighth ſpecies grows naturally at Malabar, and in Ceylon. It riſes with a ſtrong woody ſtem ten or twelve feet high, dividing into many branches. The leaves are oval, ſpear-ſhaped, five inches long, two and a half broad, of a lucid green and placed oppoſite. The flowers grow in very long ſpikes from the ends of the branches; their colour is greeniſh, with a ſhade of blue.

Culture of the JUSTICIA.

The three firſt ſpecies are propagated by ſeeds, which ſhould be ſown early in the ſpring, in ſmall pots, and plunged into a moderate hot-bed of tanners bark. The ſeeds of this plant frequently lay a year in the ground, ſo that the pots muſt not be diſturbed, if the plants do not come up the ſame year; but in the winter ſhould be kept in the ſtove, and the ſpring following plunged into a freſh hot-bed, which, if the ſeeds were good, will bring up the plants. When they are about two inches high, they ſhould be carefully taken up, and tranſplanted each into a ſeparate ſmall pot, and plunged in the hot-bed again, obſerving to water and ſhade them till they have taken new root; after which they ſhould have air admitted to them every day, in proportion to the warmth of the ſeaſon, and duly watered in hot weather.

As the plants advance in their growth, they ſhould be ſhifted into larger pots. The ſecond ſpecies is an annual, and the plants ſhould always remain in the hot-bed, being careful to let them have a due proportion of air in warm weather, that they may be brought as faſt as poſſible in the ſpring; for if the plants do not flower early they will not produce good ſeeds in England.

The firſt and third ſorts ſhould remain in the hot-bed during the ſummer ſeaſon, if there is room under the glaſſes without their being ſcorched, but at Michaelmas they ſhould be removed into the ſtove, and plunged into the bark-bed, where they muſt remain during the winter ſeaſon.

The following ſummer theſe plants will flower, and abide ſeveral years, but rarely produce good ſeeds in Europe.

The fourth ſpecies may be propagated by cuttings, which, if planted in pots in June or July, and plunged into a very moderate hot-bed, will take root: they muſt be ſhaded from the ſun, and if the external air is excluded from them, they will ſucceed better than when it is admitted.

It may alſo be propagated by laying down the young branches, which will take root in one year, and ſhould then be put each into a ſeparate pot, and placed in the ſhade till they have taken new root; when they may be removed to a ſheltered ſituation during the ſummer, and in the autumn they muſt be placed in the green-houſe, and treated in the ſame manner as Orange-trees, only allowing them more water.

The fifth ſpecies is propagated by cuttings during any of the ſummer months, which ſhould be planted in pots, and plunged into a very moderate hot-bed, where they muſt be ſhaded from the ſun. In about two months they muſt be gradually inured to bear the open air, into which they ſhould be removed, placing them in a ſheltered ſituation, where they may ſtay till autumn; but if they take root early in the ſummer, it will be proper to ſeparate them each into a ſingle ſmall pot, ſetting them in the ſhade till they have taken new root, after which they may be placed as before directed: but when it is late in the ſeaſon before they take root, it will be better to let them remain in the ſame pots till the following ſpring.

In winter theſe plants muſt be placed in a warm green-houſe, or in a moderate warm ſtove, for they are impatient of cold and damp, nor will they thrive in too much warmth; they will often require water in winter, but it muſt be given them very moderately. In ſummer they muſt be removed into the open air, but ſhould have a warm ſheltered ſituation, and in warm weather they muſt have plenty of water.

The ſixth, ſeventh, and eighth ſpecies are propagated by ſeeds, in the ſame manner as the three firſt, and muſt be treated in the ſame way, eſpecially while they are young, but afterward the eighth ſort may be more hardily treated.

The eighth ſpecies may alſo be propagated by cuttings in the ſame manner as the fifth; and when the plants are two or three years old, they will thrive in a moderate degree of warmth in winter, and in ſummer they may be placed abroad for two months in the warmeſt ſeaſon of the year; but they ſhould have a warm ſheltered ſituation, and when the nights begin to grow cold, they muſt be removed into the ſtove, but they muſt have free air admitted to them at all times when the weather is warm.

The ſixth and ſeventh ſpecies ſhould conſtantly remain in the bark-ſtove, and require the ſame treatment as other tender plants from the warmeſt countries.

IVY-TREE, *Hedera*, a genus of plants ranged by Linnæus among the *pentandria monogynia*, and of which there are only two ſpecies. 1. Ivy-tree with oval and lobed leaves, or the great common Ivy. 2. Ivy-Iree with five oval, ſawed leaves, growing together, commonly called the Virginia Creeper.

The firſt ſort grows naturally in moſt parts of Europe, particularly in England, where, when it meets any neighbouring ſupport, it riſes to a great height; it may be trained up to ſtems, or ſuffered to remain climbers to cover walls, pales, &c. While the ſtalks of this plant trail either on the ground, or walls, or any other ſupport, they do not produce flowers; but when the branches get above their ſupport they produce flowers at the end of every ſhoot.

The ſecond ſort is a native of North America' and is cultivated in our gardens chiefly to plant againſt walls or high buildings to cover them; which theſe plants will do in a ſhort time; for they often ſhoot twenty feet in one year.

Culture of the IVY-TREE.

The firſt ſpecies is propagated by its trailng branches which put out roots their whole length. Theſe branches being cut off and planted, will grow in almoſt any ſoil or ſituation. They may alſo be propagated by ſeeds, which ſhould be ſown ſoon after they are ripe.

The ſecond ſpecies is propagated by cuttings which, if planted in autumn, on a ſhady border, will take root, and, by the autumn following, be fit to plant where they are deſigned to remain.

IXIA, a genus of plants for which we have no Engliſh name. 1. Ixia with ſword-ſhaped leaves, and flowers ſtanding diſtant. 2. Ixia with flowers growing in heads, and ragged ſheaths. 3. Ixia with ſword-ſhaped, hairy, veined leaves, and flowers growing in ſpikes at the ends of the ſtalks. 4. Ixia with narrow, ſword-ſhaped leaves. and flowers proceeding from the ſides and tops of the ſtalks. 5. Ixia with ſmooth, ſpear-ſhaped leaves, and flowers growing in a corymbus terminating the ſtalk. 6. Ixia with narrow, ſword-ſhaped leaves, flowers placed alternate, and ſtalks bearing bulbs at the joints. 7. Ixia with ſword-ſhaped leaves. 8. Ixia with narrow ſword-ſhaped leaves, and ſeſſile flowers growing in ſpikes at the tops of the ſtalks. 9. Ixia with ſmooth ſword-ſhaped leaves, flowers placed diſtant alternately, and pointed petals which ſpread open.

All theſe ſpecies are natives of the Cape of Good Hope. The root of the firſt is thick, fleſhy, and divided into joints of a yellowiſh colour, ſending out many fibres. The ſtalk, which riſes to the height of three or four feet, is thick, ſmooth, and jointed. The leaves are a foot long, and one inch broad, having ſeveral longitudinal furrows, they embrace the ſtalks with their baſe, and end in acute points. The upper part of the ſtalk divides into two ſmaller, with a footſtalk riſing between them, which ſupports one flower: the ſmaller branches divide again in the ſame manner into footſtalks, which are two inches long, and each ſuſtaining one flower, compoſed of ſix equal petals, of a yellow within, variegated with dark red ſpots; and of an orange colour without. Theſe appear in July and Auguſt, and in warmeſt ſeaſons are ſucceeded by ſeeds.

The ſecond ſpecies riſes no more than three or four inches high. The leaves are narrow and veined. The flowers are ſmall, and grow on a downy head on the top of the ſtalk; they make very little appearance ſo are only preſerved in botanic gardens for the ſake of variety.

The third ſpecies has a bulbous root a little compreſſed, covered with a red ſkin, from which riſe five or ſix ſword-ſhaped leaves about four inches long, hairy with ſeveral longitudinal furrows, they embrace each other at their baſe, and between them is placed the flower-ſtalk, which riſes ſix or eight inches high, naked to the top, and terminated by a cluſter of flowers, each having a ſpatha or hood which dries and is permanent. The flowers, which are of a deep blue, are ſucceeded by roundiſh three-cornered ſeed-veſſels with three cells, filled with roundiſh ſeeds.

The fourth ſpecies has a ſmall, round, bulbous root, from which riſe four or five narrow ſword-ſhaped leaves about ſeven inches long, between theſe come out a very ſlender round ſtalk, about ten inches long; on the ſide of which is ſituated one or two cluſters of flowers, ſtanding upon ſhort foot-ſtalks, and at the top of it the flowers grow in a looſe ſpike; they are of a fine white, and ſhaped like thoſe of the other ſpecies.

The root of the fifth ſpecies is oval, bulbous, and a little compreſſed, from this come three or four narrow, thin, ſword-ſhaped leaves, near a foot long. The flower-ſtalk riſes a little above the leaves; it is very ſlender, naked, and terminated by a round cluſter of flowers compoſed of ſix large, oblong, concave petals, of a deep yellow colour each having a large black ſpot at their baſe. It flowers early in May, and the ſeeds ripen the latter end of June.

The ſixth ſpecies has narrow ſword-ſhaped leaves, riſing from the root, about ſeven inches long. The ſtalk is near a foot and a half high, and one leaf is placed at each of the lower joints, of the ſame ſhape with the others, but ſmaller; theſe embrace the ſtalk with their baſe and ſtand erect. The upper part of the ſtalk is adorned with flowers compoſed of ſix oblong, oval, whitiſh petals, having a blue ſtripe on their outſide; theſe are placed alternate on the ſtalk, which is bent at each joint where the flowers ſtand; they have three ſhort ſtamina, which are joined at their baſe, terminated by long, flat, erect ſummits; the germen is ſituated under the flower, ſupporting a long ſlender ſtyle, crowned by a trifid ſtigma. The germen afterwards becomes a roundiſh capſule with three cells, filled with roundiſh ſeeds.

The ſeventh ſpecies has ſhorter and broader leaves than the ſixth. The ſtalk is ſlender and furrowed, at each of the lower joints is placed one leaf, of the ſame ſhape with the former, embracing the ſtalk with their baſe. The flowers grow toward the tops of the ſtalks at two or three inches diſtance, each ſtalk ſupports two and ſometimes three pale yellow flowers, which are compoſed of ſix ſpear-ſhaped petals an inch and a half long; theſe are ſucceeded by round capſules with three cells, filled with round ſeeds.

The eighth ſpecies has very ſmall, round, bulbous roots from which riſe four long, ſlender, graſs-like leaves, of a deep green colour between theſe is ſituated the ſtalk, which riſes a foot and a half high. The flowers adorn the top of the ſtalk; and their colour is white, and they are ſhaped like thoſe of the other ſpecies but ſmaller; they are ſucceeded by ſmall, round, ſeed-veſſels with three cells, each containing two or three round ſeeds.

The ninth ſpecies has a round, compreſſed, bulbous root, from which riſe three or four broad ſword-ſhaped leaves a foot and a half long. The ſtalk riſes two feet high, and on this the flowers are placed alternately; they are much larger than thoſe of the former ſpecies; and of a beautiful red colour, compoſed of ſix equal petals which ſpread open, they are ſucceeded by an oval capſule with three cells, including ſeveral round ſeeds.

Culture of the Ixia.

The firſt ſpecies may be propagated either by ſeeds or parting of the roots: if by ſeeds they ſhould be ſown in pots ſoon after they ripe, and plunged into an old hot-bed, under a frame: in ſpring the plants will come up, when they ſhould be inured to the open air by degrees, and in ſummer wholly expoſed to it. The following autumn they muſt be ſeparated; ſome of the plants may be ſet in a warm border, where they live through the winter very well, if it is mild; but in very ſevere froſt they ſhould be covered with tan, to protect them from it.

The reſt may be planted in pots, and ſheltered under a common frame during the winter.

In the ſpring, before the plants ſhoot, is the proper time for parting the roots, but this ſhould not be done oftener than every third year, for when they are frequently parted, they grow weak, and flower badly. All the other ſpecies multiply very faſt by off-ſets, ſo that when once obtained, there will be no longer occaſion to raiſe them from ſeeds. Theſe plants will not live in the open air of our climate in the winter, ſo the off-ſets ſhould be planted in pots, and at that ſeaſon placed under a frame, but in mild weather the free air muſt be admitted to them. Care ſhould be taken to protect them from mice who are very fond of their roots.

IXORA, a genus of plants ranged by Linnæus among the *tetrandia monogynia*. He diſtinguiſhes ſeveral ſpecies of this genus, but the moſt beautiful of theſe, and the culture of which the gardener will find a ſufficient direction for that of all the reſt, is Ixora with oval leaves which partly embrace the ſtalk, or the Crimſon Ixora.

The root is long, and penetrates to a great depth in the earth, and is brown on the outſide, red within, and full of juice. The main ſtems are of a duſky purpliſh brown hue; and the young ſhoots grey. The leaves ſtand in pairs, and are large and handſome; thoſe on the lower part of the branches have ſhort footſtalks, thoſe on the upper none: and of theſe laſt, ſuch as ſtand neareſt at the baſe: they are of an oval form, and firm ſubſtance. Their colour on the upper ſide is a fine ſtrong browniſh green, bright and ſhining; and on the under ſide more pale and dead. The flowers crown the tops of all the branches in large tufts, and they are of a glowing crimſon, and afterwards paler, and as they fade yellowiſh; they have no ſcent. Each flower has its cup, which is formed of a ſingle piece, cut into four parts at the edge, and permanent. The flower is formed of a ſingle petal, tubular at the baſe, and cut into four parts at the edge. The tube is very long and ſlender, and is of the ſame crimſon with the reſt of the flower; this gives a ſingular aſpect to the whole, and each flower ſeems to have its long ſlender footſtalk: the four parts unite at the head of this tube, and are therefore nothing more than ſegments. Theſe ſegments are oval, flat, and expanded. The filaments are four; they are very ſhort and crooked, and they are placed in the diviſions of the flower, and crowned with oblong buttons. The ſtyle is ſingle, and of the length of the tube; it riſes from a round rudiment in the baſe of the cup, and is crowned with a head ſplit into two parts. The fruit is a roundiſh berry, and divided into cells; in each of which are two ſeeds, angular on one ſide and convex on the other.

Culture of the Crimſon Ixora.

It is a native of the warmeſt parts of Aſia, and America; and with us will never ſhew its full beauty, unleſs it be allowed the advantage of the ſtove.

The method of propagating the ſhrub ſhould be by layers: the ſeeds never ripen perfectly in cold climates, and there is great uncertainty in getting them in a growing condition, from the Indies, but the firſt raiſing of the ſhrub muſt be from theſe, when they can be obtained.

The ſeeds ſhould be brought over in the berries and as ſoon as received in England they ſhould be ſhook out upon a papered ſhelf, and turned every day to harden: after this they are to be tied up in paper bags, and ſo kept till ſpring.

In the beginning of March fill a pot of ſome of the light compoſt, ſcatter the ſeeds upon this, and ſift over them half an inch of the ſame mould. Set the pot up to the rim in a bark-bed, and once in three days the mould muſt be very lightly watered: when a good plant has thus been once obtained, the layers are the right practice.

In March, two or three boxes of rich compoſt ſhould be placed about the ſhrub, and raiſed to ſuch a height that a branch may be eaſily brought down to each. This is to be laid in the uſual manner, ſecuring it well in its place, and let it be frequently refreſhed with water. The warmth of the air, and the moiſture added to the vegetative vigour of the tree, will make them ſoon take root. In June they will be ready to take off from the old plant; and they muſt then be planted with care in ſeparate pots: they muſt be ſhaded and watered till they have taken root, and they will afterwards require no more care than that beſtowed on other ſtove plants.

K.

KALMIA, a genus of plants for which there is no Engliſh name, and only two ſpecies. 1. Kalmia with oval leaves, and flowers growing in bunches terminating the branches. 2. Kalmia, with ſpear-ſhaped leaves, and flowers growing in round bunches on the ſides of the ſtalks.

The firſt ſpecies is a native of ſeveral parts of North-America, where it riſes from ſix to twelve feet high, dividing into many ligneous branches, covered with a dark grey bark; they are generally crooked and irregular, but are cloſely garniſhed with ſtiff leaves about three inches long and one broad, of a lucid green, ſtanding upon ſlender foot-ſtalks; the flowers grow in looſe bunches at the end of the branches, upon long foot-ſtalk; they are of one petal, with a ſhort tube, which ſpreads open at the top, where it is cut into five angles; the flowers are of a bright red colour when they firſt open, but afterwards fade to a bluſh or peach bloom colour; theſe are ſucceeded by roundiſh, compreſſed ſeed-veſſels, crowned by the permanent ſtyle, divided into five cells, which are filled with ſmall roundiſh ſeeds.

The ſecond ſort grows naturally in Penſylvania, where it riſes four or five feet high. The leaves of this ſort are about two inches long, and half an inch broad in the middle: they are ſtiff, of a lucid green, and ſtand oppoſite: ſometimes they are by pairs at each joint, and at others there are four, two on each ſide, ſtanding upon very ſhort foot-ſtalks; the flowers come out in cluſters on every ſide the ſtalks: they are of a beautiful red colour, and ſhaped like thoſe of the firſt ſort, but ſmaller: they are ſucceeded by ſhort, roundiſh, compreſſed capſules, with five cells, crowned by the permanent ſtyle, and filled with very ſmall ſeeds. This ſhrub in its native country, continues flowering moſt part of ſummer.

Culture of the KALMIA.

Both theſe ſorts multiply by their creeping roots in their native ſoil: and where they have ſtood unremoved a conſiderable time, they put out ſuckers in great plenty; and as theſe plants which come from ſuckers, are much more likely to produce others than thoſe which are raiſed from ſeeds, and will flower much ſooner, ſo the plants ſhould not be removed, but encouraged to ſpread their roots, whereby they may be propagated; they love a moiſt, light, boggy ſoil, in which they will thrive and flower.

KATKIN, or CATKIN. See CATKIN.

KEEL, *Carina*. See PAPILIONACEOUS.

KEMPFERIA, according to Linnæus a ſpecies of Verbena, but conſidered by other authors as a diſtinct genus.

This plant is a native of the Eaſt-Indies. The roots are divided into ſeveral fleſhy tubers, which are ſometimes jointed, and grow about four or five inches long. The leaves are oval, about four inches long, and two broad, without foot-ſtalk, growing cloſe to the root. Between theſe leaves the flowers are produced ſingly, having no foot-ſtalks, but are cloſely embraced by the leaves; they are of a delicate white, with a bright purple bottom, but they are not ſucceeded by fruit in England.

Culture of the KEMPFERIA.

It is propagated by parting the roots, and the beſt time for this is in ſpring, juſt before they begin to put out their leaves. They ſhould be planted in pots filled with light rich earth, and plunged into a bark-ſtove, where they muſt always remain. The leaves decay in autumn, and care ſhould be taken not to give them too much water while they are in this inactive ſtate.

KETMIA, a ſpecies of Hibiſcus. See HIBISCUS.

KIDNEY-*Bean*. See *Kidney*-BEAN.

KIGGELARIA, a genus of plants, which has no Engliſh name, and only one known ſpecies.

It is a native of the Cape of Good Hope, where it riſes to a middling ſtature. The branches are covered with a ſmooth bark, which is at firſt green, but afterwards changes to a purpliſh colour. The leaves are about three inches long, and one broad, of a light green, ſawed on their edges, and ſtand upon ſhort foot-ſtalks alternately. The flowers appear in cluſters from the ſides of the branches, hanging downward: they are of an herbaceous white colour. The male flowers fall away as ſoon as their farina is ſhed; but the female flowers are ſucceeded by globular fruit, about the ſize of a common red cherry, with a rough cover of a thick conſiſtence, opening in four parts at the top, to each of which adhere many ſmall angular ſeeds.

Culture of the KIGGELARIA.

This plant is propagated by cuttings. In May, juſt before the plants begin to ſhoot, theſe ſhould be ſet in pots, and plunged into a very moderate hot-bed, covering them cloſe with a glaſs to exclude the air, and always obſerve to ſhade them from the noon ſun, and they ſhould have a little water after planting.

When they begin to get ſtrength, they ſhould be removed each into a ſeparate ſmall pot, and ſhaded till they have taken freſh root, after which they may be expoſed to the air in a ſheltered ſituation till Auguſt, when they muſt be removed into the green-houſe, and treated in the manner of other green-houſe plants.

KING's SPEAR, *Aſphodelus*. See the article ASPHODELUS.

KITCHEN-GARDEN, a piece of ground laid out for the cultivation of fruit, herbs, pulſe, and other vegetables uſed in the kitchen. See the article GARDEN.

L.

LABIATED, is a term applied to ſuch flowers as have lips; or a labiated flower is an irregular monopetalous flower, divided into two lips.

LABURNUM, a ſpecies of Cytiſus. See the article CYTISUS.

LABYRINTH, a winding, mazy walk between hedges, through a wood or wilderneſs. The chief aim is to make the walks ſo perplexed and intricate, that a perſon may loſe himſelf in them, and meet with as great a number of diſappointments as poſſible. They are rarely to be met with, except in great and noble gardens, as Verſailles, Hampton-court, &c.

There are two ways of making them; the firſt is with ſingle hedges: this method has been practiſed in England: and theſe may, indeed, be beſt, where there is but a ſmall ſpot of ground allowed for making them: but where there is ground enough, the double is moſt eligible. Thoſe made with double hedges, with a conſiderable thickneſs of wood between them, are eſteemed much better than ſingle ones; this is the manner of making them in France and other places: of all which that of Verſailles is allowed to be the nobleſt of its kind in the world. It is an error to make them too narrow, for that makes it neceſſary to keep the hedges cloſe clipt: but if according to the foreign practice, they are made wider, they will not ſtand in need of it. The walks are made with gravel, uſually ſet with Hornbeams: the paliſades ought to be ten, twelve, or fourteen feet high: the Hornbeam ſhould be kept cut, and the walks rolled.

LADIES MANTLE, *Alchemilla*, a genus of plants, ranged by Linnæus among the *tetrandria monogynia*, and of which there are three ſpecies. 1. Ladies Mantle, with lobated leaves; or the common Ladies Mantle. 2. Ladies Mantle, with finger-ſhaped, ſawed leaves. 3. Ladies Mantle, with five ſmooth leaves, growing at a joint, and cut into many ſegments.

Theſe plants have perennial roots, and annual ſtalks. The firſt grows naturally in paſture-lands in this, and in moſt other countries in Europe. The ſecond is a native of the mountainous parts of Europe; and the third grows naturally in Sweden, Lapland, and other cold countries.

Culture of the Ladies MANTLE.

Theſe plants are eaſily propagated by parting of their roots, or ſowing their ſeeds in autumn. They ſhould have a moiſt ſoil, and a ſhady ſituation, and be kept clean from weeds, which is all the culture they require.

LADIES-FINGER, or KIDNEY-VETCH, *Anthyllis*, a genus of plants, ranged by Linnæus among the *diadelphia decandria*, and of which there are nine ſpecies. 1. Herbaceous Ladies-finger, with leaves four times winged, and flowers growing from the ſides of the ſtalks. 2. Herbaceous Ladies-finger, with unequal winged leaves, and double heads. 3. Herbaceous Ladies-finger, with equal winged leaves, terminated by heads of flowers. 4. Herbaceous Ladies-finger, with unequal winged leaves, and ſingle heads of flowers. 5. Herbaceous Ladies-finger, with leaves divided into three parts, and priſmatic cups growing in bunches, and of the length of the pods. 6. Shrubby Ladies-finger, with equal winged leaves, and flowers growing in heads. 7. Shrubby Ladies-finger, with unequal leaves, growing three at a joint, and downy cups growing from the ſides. 8. Shrubby Ladies-finger, with ſeſſile leaves, growing three at a joint, and naked cups. 9. Shrubby prickly Ladies-finger, with ſimple leaves.

The firſt, fourth, and fifth ſpecies are annual plants, and natives of Italy, Sicily, and Spain. The ſecond ſpecies grows naturally in the north parts of Europe; and the third is a native of France and Switzerland; they are both perennial plants. The ſixth is alſo a native of Switzerland. The ſeventh and ninth are natives of Spain, and the eighth grows naturally in Greece.

The three firſt ſpecies are propagated by ſeeds, which ſhould be ſown in April upon a bed of light earth. When the plants come up, they ſhould be thinned to the diſtance of two feet, and kept clean from weeds, which is all the culture they require.

The ſecond and third ſpecies are alſo propagated by ſeeds, which ſhould be ſown either in autumn or ſpring. When the plants are come up, let them be kept clean from weeds, thinned where they grow too cloſe, and in autumn tranſplanted to the places in which they are to remain.

The ſixth, ſeventh, eighth, and ninth ſpecies are propagated either by ſeeds or cuttings. The ſeeds ſhould be ſown in autumn, in pots filled with light earth, and placed under a frame in winter to ſcreen them from the froſt. When the plants will bear it, they ſhould be tranſplanted each into a ſmall pot, filled as the former, and placed in the ſhade till they have taken new root; after which they may be treated like other hardy exotics till October, when they muſt be taken into ſhelter.

The cuttings may be planted during any of the ſummer months, and watered and ſhaded till they have taken root; after which they may be planted in pots, and treated like the ſeedling plants.

LADIES SLIPPER, *Cypripedium*, a genus of plants ranged by Linnæus among the *gynandria diandria*, and of which there are three ſpecies; the culture of the following will be a ſufficient direction for that of the other two; *viz.* Fibrous-rooted Ladies Slipper, with oval, and ſpear-pointed leaves growing on the ſtalk. This plant is a native of England, and ſeveral other parts of Europe. The root is irregular, oblong, and creeps beneath the ſurface: it is of a blackiſh colour, and hung with innumerable fibres; marked on the ſurface with the impreſſions of decayed ſtalks, and ſwoln at the extremities with buds of new ones. The leaves are oblong, broad, and firm. Their colour is an elegant green, and they have high ribs running lengthways. The ſtalk is ten inches high, round, upright, and of a pale green, often ſtained with red at the baſe. The leaves on this are like thoſe from the root, a little hairy, as is alſo the ſtalk. In its wild ſtate the plant uſually produces only a ſingle flower, which terminates the ſtalk, but in gardens, and where nature greatly favours it elſewhere, there will be two. One always terminating the ſtalk; the other riſing from the boſom of the leaf next under it, on a long tender foot-ſtalk. Theſe are large, and in colour partly yellow, and partly purple: the ſlipper as it is called being yellow; the reſt tinged with crimſon, but theſe colours are not certain, white often getting in among them, and ſometimes the purple or crimſon becoming univerſal. What has been firſt deſcribed, as it is the moſt natural, is alſo the moſt elegant ſtate of the plant. This flower, in place of a cup, has that kind of defence called the ſpatha or ſcabbard: the flower itſelf is compoſed of four petals and its ſingular nectarium: this is the piece called the ſlipper, and as it is the moſt peculiar, is alſo the largeſt part of the flower. The petals are long, narrow, and placed in form of a croſs: the upper and under ones are longer than thoſe placed ſideways: the two ſide petals are hairy on the inſide, which gives it a velvety hue, and adds greatly to the beauty of the flower. From the baſe of the loweſt petal riſes the nectarium or ſlipper; this is of the ſhape and bigneſs of a pigeon's egg; tender, membranaceous, and hollow. The colour is naturally a pale yellow, but with good culture it will glow perfect gold; and on the under ſide it is marked with a few long veins of purple, but tinctured a little with crimſon. This is all the red natural to the ſlipper part; but ſometimes from the luxuriance of nature, or of ill directed culture it ſpreads over the whole. The ſlipper is rounded and obtuſe at the end; and toward the baſe it has an opening which ſhews it ſomewhat hairy within. This gives it the air of a coarſe ſlipper, or rather of a wooden ſhoe. The opening is defended by a kind of lip, doubled, and very ſingular. The upper part is white, ſprinkled with purple ſpots; the under thicker, greeniſh, and ſpotted at the ſides with black. The filaments are only two, and they are very minute; but they are ſufficiently conſpicuous from their upright buttons. Theſe are defended by the upper lip of the nectarium or ſlipper: but, that raiſed a little, they become very obvious. The rudiment of the fruit is long and twiſted, and its ſtyle very ſhort, and fixed to the upper lip of the nectarium, terminated by a faint ſtigma.

Culture of the LADIES SLIPPER.

This plant is propagated either by ſeeds or parting the roots. The ſeeds muſt be ſaved from the ſtrongeſt plants and ſown in the following compoſt.

Mix equal parts of earth from a rich upland paſture, river-mud, and the mellow ſoil from under an old wood-pile; to a load of this add a buſhel of ſand; and dig in a good quantity of fallen Beech-leaves, the ſweepings of a garden.

Throw up this into a heap, and let it lie all winter and a great part of the ſucceeding ſummer; turning it often, and ſprinkling the heap with water. Thus all will rot mellow, and mix perfectly together.

Let a piece of ground be dug up facing the ſouth-weſt, well-ſhaded and among trees; take out the mould a ſpades depth and lay the compoſt in its place. Draw lines lengthways and acroſs at a foot diſtance; and in the centre of each ſquare open a hole, and plant one root with its ball of earth.

When theſe are in, ſcatter the ſeeds upon the ſurface; and cover all one inch deep with fallen Beech leaves. The roots in general will live, and a good part of them will flower; but theſe will by degrees grow weaker and decay. A great quantity of ſeeds will produce but a few plants, but theſe will be laſting; they muſt be left ſtanding where they riſe. The whole care of the plant is this: all ſpring they muſt be kept clear from weeds, beeween them muſt be covered with beech leaves. As they ſhoot leaves or ſtalks they muſt be frequently watered; and at the approach of winter the whole bed muſt be covered with leaves again. In this manner tho' the tranſplanted roots by degrees decay, the ſeedlings will flouriſh laſtingly.

LADIES SMOCK, or CUCKOW FLOWER, *Cardamine*, a genus of plants ranged by Linnæus among the *tetradignamia ſiliquoſa*, and of which there are fifteen ſpecies; as almoſt all of them are natives of this country, and not above one or two ever admitted into gardens, it will be unneceſſary to deſcribe more than the

Double Ladies Smock, which is a beautiful variety of the Common Ladies Smock of our meadows.

The root is thick and furniſhed with innumerable long fibres. The ſtalk is round, upright, and a foot or more in height, reddiſh at the bottom, and of a dark green upwards. The leaves are long and pinnated; their colour is a freſh and lively green; and the pinnæ are oblong, narrow, pointed, and of a tender ſubſtance, their footſtalks are often reddiſh, and the main ſtalk tinged with the ſame colour where they are inſerted. The flowers are of the breadth of a ſhilling, ſwelling into roundneſs from a ſmall baſe, and formed in the manner of a double roſe, of innumerable petals placed in ſeveral ſeries; theſe are narrow at their baſe, broader to the extremity, and there frequently waved and curled along the edge. Their colour is ſnow-white, and in this ſtate they make a very delicate appearance. The fruit or ſeed-veſſel is a pod. In the ſingle and natural ſtate of the plant, the flower is compoſed of four petals, placed croſs-ways; and has a cup formed of four oval leaves. The petals have very ſlender bottoms, longer than the leaves of the cup. The filaments in the centre of the flower are ſix; and of thoſe four are longer, and two ſhorter: they have all oblong, little, and heart-like buttons. The rudiment of the pod ſupports the ſtigma without any intermediate ſtyle; and the pod which follows is ſlender, and formed of two valves, which ſeparate when it is ripe, and roll back. The ſeeds are roundiſh.

Culture of the Double LADIES SMOCK.

This is one of the hardy plants which bear all ſeaſons in our open borders, and require little care or culture: but unleſs a peculiar place be choſen for it, the plant will pine, and the flowers never have half their natural beauty.

The gardener muſt therefore fix upon a low part of the garden, where wet naturally lodges, and where there is not too much ſun. Then let him dig out the mould, and put in its place a compoſt made of rich black meadow earth, and one fourth part of dung, from an old Melon-bed; with this let him mix a ſmall quantity of coarſe ſand.

In autumn let him part the roots of this plant gathered wild, if there be any double ones near; if not, let him procure ſome roots parted from another ſtock: let theſe be planted at ten inches diſtance, and covered one inch with the mould. Nothing more need be done than keeping the ground clear from weeds. The plant will flower early the ſucceeding year, and increaſe abundantly.

LANIGEROUS PLANTS, ſuch as bear a woolly or downy ſubſtance.

LANTANA, the name of botaniſts, for a plant, called in Engliſh the American Viburnum; ranged by Linnæus among the *didynamia angioſpermia*, and of which there are ſeven ſpecies. 1. Lantana with branched and naked ſtalks, leaves placed oppoſite, and flowers in umbellated heads, or Scarlet Lantana, commonly called Camara. 2. Lantana with leaves placed by threes round the ſtalk, and oblong imbricated ſpikes. 3. Lantana with leaves placed oppoſite, a ſmooth ſtalk, and oblong ſpikes. 4. Lantana with leaves placed oppoſite, a branching prickly ſtalk, and umbellated flowers growing on heads. 5. Lantana with alternate leaves, and oblong ſpikes. 6. Lantana with alternate leaves, and flowers growing in bunches. 7. Lantana with alternate ſeſſile leaves, and flowers growing ſingly.

The ſix firſt ſpecies are ſhrubby plants, and natives of South America, and the ſeventh of the Cape of Good Hope. Among theſe, none merits our attention ſo much as the firſt ſpecies.

It is a handſome ſhrub of four feet high, and ſometimes more. The root is covered with a whitiſh bark, and hung about with fibres. The main ſtem has a rough, greyiſh, brown bark, and is irregular in ſhape. The young ſhoots are tender, downy, angulated, and often reddiſh. The leaves pleaſe the eye both by their form and diſpoſition. They are broad at the baſe, ſerrated at the edges, ſharp-pointed, rough on the ſurface, of an agreeable pale green, and hairy; they ſtand in pairs, and have ſlender reddiſh foot-ſtalks. The flowers terminate all the branches in great rounded tufts, and they are naturally of a very elegant ſcarlet, but ſometimes, in the ſame tuft, we ſee ſome of them of this fine and elegant red, others orange-coloured, ſome of a fleſhy hue, ſome a pale yellow, and others whitiſh.

Each flower is formed of a ſingle petal; this is ſmall and tubular at the baſe, and ſpreads at the rim into four broad ſegments. The cup in which the flower ſtands is very ſhort, of a tubular form, and lightly dented in four places. The fruit is of the berry kind, but dry: it is roundiſh in ſhape, and contains a ſingle ſtone, in which are two kernels lodged in ſeparate cells.

Culture of the LANTANA.

All the ſpecies may be propagated either by cuttings or ſeeds, except the ſecond, which being an annual plant, muſt always be raiſed from ſeeds.

The ſeeds ſhould be ſown in pots filled with light earth, and plunged into a hot-bed of tan; if the plants do not come up the ſame year, the pots ſhould be placed in the ſtove in winter, and the following ſpring plunged into a new hot-bed.

When the plants are fit to be removed, each ſhould be planted in a ſmall pot, and plunged into another hot-bed; obſerving to keep them ſhaded till they have taken new root; after which they ſhould have air admitted to them, in proportion to the warmth of the ſeaſon, and treated as other tender exotics till they have acquired ſtrength: then remove them into an airy glaſs-caſe, or a dry ſtove, for the firſt year; but after that they may be placed abroad in the warmeſt part of the ſummer, and in winter upon ſtands in the dry ſtove.

If they are propagated by cuttings it ſhould be done in July; the cuttings ſhould be planted in ſmall pots, filled with light earth, plunged in a moderate hot-bed, and ſcreened from the violence of the ſun in the middle of the day. When they have taken root they may be gradually inured to the open air, and afterwards treated as the ſeedling plants.

The ſeventh ſpecies is not ſo tender as the reſt, and may therefore be preſerved in a good green-houſe in the winter, and in the ſummer it may be expoſed to the open air with other green-houſe plants, in a ſheltered ſituation.

LARCH-TREE, *Larix*, according to Linnæus a ſpecies of the Pine-tree, but by other authors conſidered as a diſtinct genus, of which there are two ſpecies. 1. Larch-tree, with deciduous leaves, and oval, obtuſe cones. 2. Cedar of Libanus.

The firſt ſpecies grows naturally upon the Alps and Appennines. It is a tree of quick growth, and riſes to the height of fifty feet or more. The branches are ſlender and their ends generally hang downward; the leaves are long, narrow, ariſe in cluſters from one point, and ſpread open like a painters bruſh: they are of a light green, and fall off in autumn. In the month of April the male flowers appear, which are diſpoſed in form of ſmall cones. The female flowers are collected into oval obtuſe cones, which in ſome varieties have bright purple tops; and in others white. The cones are about an inch long, obtuſe at their points: the ſcales are ſmooth, and lie over each other; under each ſcale there is uſually lodged two ſeeds, which have wings.

There are two varieties of this tree: one of them is a native of America, and the other of Siberia. Theſe differ from the common Larch-tree in their ſhoots and leaves. The American, or Black Larch, thrives very well in ſeveral gardens in England, but the latter requires a colder climate, for they often die here in ſummer, eſpecially if they are planted on a dry ſoil. This ſort will often puſh out leaves by the end of February: and if there happens froſt later in the year, the ſhoots are frequently killed, and their leaves drop off, ſo that they are frequently naked till June, when the trees put out freſh ſhoots. The cones of this ſort are in general larger than thoſe of the common kind.

For the deſcription and culture of the ſecond ſpecies, ſee the article CEDAR of LIBANUS.

Culture of the LARCH-TREE.

Theſe trees are raiſed from ſeeds, which moſt years ripen well in England. The cones ſhould be gathered about the end of November, and kept in a dry place till the ſpring, when they ſhould be ſpread on a cloth and expoſed to the ſun, or laid before the fire, which will cauſe the cones to open and emit their ſeeds. Theſe ſeeds ſhould be ſown on a border expoſed to the eaſt, where the morning ſun only comes on it; or if they are ſown on a bed more expoſed to the ſun, they ſhould be ſcreened with mats in the middle of the day; for when the plants firſt appear above ground, they are very impatient of heat: and when the bed is much expoſed to the ſun, the ſurface of the ground will dry ſo faſt, as to require water frequently, which often rots the tender roots of the plants.

When the young plants come up they muſt be kept clean from weeds, and if they have made good progreſs they may be tranſplanted the following autumn, otherwiſe they may remain in the ſeed-bed another year, eſpecially if the plants are not too cloſe together. When they are tranſplanted it ſhould be performed in the autumn, as ſoon as their leaves appear: and they may be planted in beds at about ſix inches aſunder each way, which will be diſtance enough for the growth of the plants the two following years, by which time they will be fit to tranſplant where they are to remain.

When the young trees are planted out for good, they need not be ſet at more than eight or ten feet aſunder, always planting them cloſer on expoſed ſituations than where they are more defended. After the trees are planted they will require no other care but to keep them clean from weeds for three or four years, till they have obtained ſtrength. The ground between theſe trees ſhould not be dug, for it otherwiſe ſtops their growth.

LARKSPUR, *Delphinium*, a genus of plants, ranged by Linnæus among the *polyandria trigynia*, and of which there are ſix ſpecies. 1. Larkſpur, with a one leafed nectarium, and a divided ſtalk; or the Field Royal Conſound. 2. Larkſpur, with a one leafed nectarium, and a ſingle ſtalk. 3. Larkſpur, with a two-leafed nectarium, a ſingle ſeed-veſſel, and leaves divided into many obtuſe ſegments. 4. Larkſpur, with a two-leafed nectarium, an intire lip, flowers growing ſingly, and compound leaves divided into many narrow parts. 5. Larkſpur, with a two-leafed nectarium, a bifid lip, bearded at the top, cut leaves, and an erect ſtalk. 6. Lark-ſpur, with a two-leafed cup, and palmated leaves, with intire lobes.

The firſt and ſecond ſpecies are annual plants. The firſt is a native of moſt parts of Europe, and conſiſts of a great many varieties, which the gardeners diſtinguiſh into the branched, and the upright, or unbranched Larkſpur. This and the ſecond ſpecies are great ornaments to the borders of a flower-garden.

The third ſpecies grows naturally in Italy and Sicily. The fourth and fifth ſpecies are natives of Siberia, and have perennial roots. The ſixth ſpecies grows naturally in the Levant, and in ſome parts of Spain.

Culture of the LARKSPUR.

The firſt and ſecond ſorts are propagated by ſeeds, which ſhould be ſown where the plants are deſigned to remain. Thoſe ſeeds which are ſown in autumn produce the ſtrongeſt plants, and the moſt double flowers, and ripen their ſeeds better than ſuch as are ſown in the ſpring. The plants require no other culture but to be thinned to a proper diſtance, and kept clean from weeds; but when they begin to flower they ſhould be ſupported by ſticks, to prevent their being broken by the wind, eſpecially if they are not in a ſheltered ſituation.

The third ſpecies is an annual plant, but having little beauty, is only preſerved in the gardens of the curious for the ſake of variety. The fourth and fifth ſort are propagated by ſeeds, which ſhould be ſown in autumn: and the autumn following the plants ſhould be tranſplanted to the places where they are deſigned to remain. The ſummer afterwards they will flower, and their roots will continue many years, and produce great numbers of flower-ſtalks. The ſixth ſpecies may be propagated like the firſt and ſecond ſort.

LAVATERA, a genus of plants, for which there is no Engliſh name; ranged by Linnæus among the *monadelphia polyandria*, and of which there are eight ſpecies. 1. Lavatera, with a tree-like ſtalk, woolly, plaited leaves, having ſeven angles, and foot-ſtalks, with ſingle flowers riſing in cluſters from the wings of the leaves; commonly called Tree Mallow. 2. Lavatera, with a tree-like ſtalk, woolly, plaited, crenated leaves, with ſeven acute angles, and long bunches of flowers, terminating the ſtalks. 3. Lavatera, with a ſhrubby ſtalk, and leaves furniſhed with five arrow-pointed lobes. 4. Lavatera, with a ſhrubby ſtalk, heart-ſhaped leaves, furniſhed with three round, indented, crenated lobes, heart-ſhaped ſtipulæ, and foot-ſtalks with ſingle flowers. 5. Lavatera, with a ſhrubby ſtalk, woolly, plaited leaves, with ſeven angles, and long bunches of flowers terminating the ſtalks. 6. Lavatera, with an herbaceous ſtalk, naked fruit, and a cut cup. 7. Lavatera, with an erect ſtalk, the lower branches diffuſe, foot-ſtalks growing in cluſters at the wings of the ſtalks, and each ſuſtaining a ſingle flower. 8. Lavatera, with ſmooth leaves, a rough herbaceous ſtalk, one flower upon a foot-ſtalk, and an orbicular, cloſed fruit.

All theſe ſpecies are natives of Europe, and are very ornamental plants in gardens.

Culture of the LAVATERA.

The five firſt ſpecies are eaſily propagated by ſeeds, which ſhould be ſown in ſpring upon a bed of light earth; and when the plants are about three or four inches high, they ſhould be tranſplanted to the places where they are deſigned to remain.

If the ſeeds are ſuffered to ſcatter on the ground, the plants will come the following ſpring; and when they happen to fall into dry rubbiſh, they will produce a greater number of flowers than thoſe that are more luxuriant.

The ſixth, ſeventh, and eighth ſpecies are alſo propagated by ſeeds; theſe ſhould be ſown in March upon a bed of light freſh earth. When the plants are come up, let them be cleared from weeds, and in very dry weather refreſhed with water; when they are about two inches high, they ſhould be tranſplanted to the places in which they are deſigned to remain. In doing this, care ſhould be taken to preſerve a ball of earth to their roots: and they ſhould be watered and ſhaded till they have taken new root, after which they will require no other care but to keep them clean from weeds, and ſupport them by ſtakes, to prevent their being injured by the winds.

The ſeeds of theſe plants may alſo be ſown in autumn, and when the plants are come up, let them be removed into ſmall pots, which toward the end of October, ſhould be placed in a common hot-bed frame, where the plants being defended from ſevere froſts, will abide the winter very well. In the ſpring they may be ſhaken out of the pots and planted into larger ones, or elſe into the full ground, where they may remain to flower. By this management the plants will be larger, and flower ſtronger and earlier than thoſe ſown in the ſpring.

When the eighth ſpecies is ſown in the ſpring, it ſhould be in the place where the plants are to remain, for they do not bear well to be removed in the ſummer.

LAVENDER, *Lavendula*, a genus of plants, ranged by Linnæus among the *didynamia gymnoſpermia*, and of which there are four ſpecies. 1. Broad-leaved Lavender. 2. Narrow-leaved Lavender. 3. Cut-leaved Lavender. 4. Lavender, with a longer, narrower, and more elegant cut leaf.

The firſt ſort is cultivated in ſeveral of the Engliſh gardens, and has been generally known by the title of Spike, or Lavender Spike; the leaves of this ſort are much ſhorter, and broader than thoſe of the common Lavender; the branches are ſhorter, more compact, and fuller of leaves. This ſort doth not often produce flowers, but when it does the flower-ſtalks are garniſhed with leaves very different from thoſe of the other branches, approaching nearer to thoſe of the common ſort, but are broader; the ſtalks grow taller, the ſpikes of flowers are larger, the flowers are ſmaller, and are in looſer ſpikes.

The ſecond ſort is the common Lavender, which is ſo well known as to require no deſcription. Both theſe ſorts flower in July, at which time the ſpikes of the ſecond ſort are gathered for uſe; there is a variety of this with white flowers.

The third ſort grows naturally in Andaluſia; this is an annual plant, which riſes with an upright branching ſtalk, near three feet high; the ſtalks are woolly, garniſhed with hoary leaves growing oppoſite, which are cut into many diviſions to the mid-rib; theſe ſegments are again divided on their borders toward the top, into three obtuſe ſegments, ſo that they end in many points. The foot-ſtalk of the flower is naked, having four corners or angles, and is terminated by a cloſe ſpike of flowers, about one inch long: the ſpike has the rows of flowers twiſted ſpirally; under this ſpike there are commonly two ſmall ones proceeding from the ſide of the ſtalk, at about an inch diſtance from the middle ſpike. There are two varieties of this, one with blue, and the other with white flowers.

The fourth ſort grows naturally in the Canary Iſlands. This riſes with an upright branching ſquare ſtalk, four feet high, garniſhed with leaves, are longer, and cut into narrower ſegments than thoſe of the third ſort. They are of a lighter green, and hairy: the naked flower-ſtalk is alſo longer, and terminated with a cluſter of ſpikes of blue flowers. The flowers are ſmaller than thoſe of the common Lavender, but are of the ſame ſhape.

Culture of Lavender.

The two firſt ſpecies are propagated by ſlips, the beſt ſeaſon for which is in March; they ſhould be planted in a ſhady ſituation, or at leaſt ſhaded with mats until they have taken root: after which they may be expoſed to the ſun, and when they have obtained ſtrength, may be removed to the place where they are deſigned to remain. The plants will live the longeſt in a dry, gravelly, or ſtony ſoil, in which they will endure our ſevereſt winters: though they will grow much faſter in the ſummer, if they are planted upon a rich, light, moiſt ſoil, but then they are generally deſtroyed in winter, nor are the plants half ſo ſtrong ſcented. The third ſort is ſown every ſpring on borders or beds, and when the plants come up, they may be tranſplanted into other borders of the flower-garden, or into pots, where they are deſigned to flower, and will require no farther care but to keep them clean from weeds. If the ſeeds of this ſort are permitted to ſcatter, the plants will come up the following ſpring without care, and may be treated in the manner before directed. The fourth ſpecies is tenderer than either of the former, ſo the ſeeds muſt be ſown on a moderate hot-bed in the ſpring; and when the plants are fit to remove, they ſhould be each planted into a ſeparate ſmall pot, and plunged into another hot-bed, to bring the plants forward; in the beginning of June they ſhould be inured to the open air, in which they ſhould be placed in a ſheltered ſituation; in July the plants will flower, and if the autumn proves warm, the ſeeds will ripen in September; but when they do not perfect ſeeds in the open air, the plants may be removed into a glaſs-caſe, where the ſeeds will ripen.

LAVENDER-COTTON, *Santolina*, a genus of plants, ranged by Linnæus among the *ſyngeneſia polygamia æqualis*, and of which there are eleven ſpecies. 1. Lavender-cotton, with one flower upon a foot-ſtalk, and leaves indented four ways; or common Lavender-cotton. 2. Lavender-cotton, with one flower upon a foot-ſtalk, globular empalements, and woolly leaves, which are indented four ways. 3. Lavender-cotton, with one flower upon a foot-ſtalk, declining ſtalks, and linear leaves, which are four ways indented. 4. Lavender-cotton, with one flower upon a foot-ſtalk, and very long linear leaves, which are two ways indented. 5. Lavender-cotton, with one flower upon a foot-ſtalk, globular heads, and linear, entire leaves. 6. Lavender-cotton, with one flower upon a foot-ſtalk, and linear obtuſe leaves growing in cluſters. 7. Lavender-cotton, with one flower upon a foot-ſtalk, and longer woolly leaves, which are twice indented. 8. Lavender-cotton, with ſingle corymbuſes of flowers, which are cloſe togerher at the top, and wing-pointed indented leaves. 9. Lavender-cotton, with ſingle corymbuſes of flowers, which are cloſed together at the top, and leaves having three wedge-ſhaped lobes. 10. Lavender-cotton, with ſingle corymbuſes, which are cloſed together at the top, and linear leaves half divided into three points. 11. Lavender-cotton, with compound corymbuſes, which are cloſed together at the top, the under leaves linear, and indented, and the upper oval, and ſawed.

The firſt ſpecies grows naturally in Spain, Italy, and other warm parts of Europe. It has a ligneous ſtalk, dividing into many branches. The leaves are ſlender, hoary, four ways indented, and have a rank ſtrong odour when handled. The branches are terminated by a ſingle flower, compoſed of many hermaphrodite florets, which are fiſtular, cut into five parts at the top, of a ſulphur colour, and are included in one common empalement, having no borders or rays. Theſe are ſucceeded by ſmall, oblong, ſtriated ſeeds, which are ſeparated by ſcaly chaff, and ripen in the empalement.

The ſecond ſpecies is a native of Spain. It has a ſhrubby ſtalk, which branches out like the former, but the plants ſeldom grow ſo tall. The leaves are ſhaped like thoſe of the other ſort, but ſhorter, thicker, and whiter. The flowers are much larger, and the brims of the florets are more reflexed; they are of a deeper ſulphur colour than the other.

The third ſpecies is of lower ſtature than either of the former, ſeldom riſing more than fifteen or ſixteen inches high. The branches ſpread horizontally near the ground. The leaves are ſhorter than either of the former, hoary, and finely indented. The ſtalks are terminated by ſingle flowers, of a bright yellow colour, which are larger than thoſe of the firſt ſort.

The fourth ſort riſes higher than either of the former, the branches are more diffuſed, ſlender, and ſmooth. The leaves are long, very narrow, of a deep green, and two ways indented. The ſtalks are ſlender, naked toward the top, and terminated by ſingle flowers of a gold colour.

The fifth ſpecies has ſhrubby ſtalks, which riſe three feet high, ſending out long, ſlender branches. The leaves are ſingle, linear, and of a pale green. The ſtalks are terminated by large, ſingle, globular flowers, of a pale ſulphur colour.

The ſixth ſpecies has ſome reſemblance of the fifth, but the branches are ſhorter and thicker. The leaves come out in cluſters. The flower-ſtalks are ſparſedly diſpoſed, and have leaves to their tops, the flowers are ſmall and of a yellow colour.

The ſeventh ſpecies has ſhrubby ſtalks, which riſe three feet high. The leaves are broader than either of the former. The ſtalks divide at the top into two or three foot-ſtalks, each ſuſtaining one large ſulphur-coloured flower.

The eighth ſpecies is an annual plant, which grows naturally in the Mediterranean. It riſes with herbaceous, ſlender ſtalks, one foot high; they are hoary, ſending out branches, which diminiſh in their length to the top of it. The leaves grow in cluſters, and are wing-pointed. The branches are terminated by cluſters of flowers, of a bright yellow colour.

The ninth ſpecies is a native of the Cape of Good Hope. It riſes with a ſhrubby ſtalk five or ſix feet high, ſending out many ſlender branches. The leaves are ſhort, flat, cut into three parts at the top, of a grey colour, and ſit cloſe to the branches. The flowers are diſpoſed in a ſingle corymbus at the ends of the branches, and are very cloſely connected together; they are of a pale ſulphur colour, and have roundiſh, ſcaly empalements.

The tenth ſpecies is a native of the ſame place. It has a ſhrubby ſtalk very like the former, but the leaves of this are linear, cut half their length into three points, and ſometimes into five. The flowers reſemble thoſe of the former ſort.

The eleventh ſpecies is alſo a native of the Cape of Good Hope. It has a low ſhrubby ſtalk, dividing into ſeveral branches. The leaves are of two ſorts: thoſe on the lower part are oblong, and cut on their edges into acute points, and thoſe on the upper are ſhort, ſtiff, and ſlightly indented at their ends. The flowers are diſpoſed in a compound corymbus at the ends of the branches, and are of a pale yellow colour.

Culture of LAVENDER-COTTON.

The ſeven ſpecies firſt mentioned are hardy plants, and eaſily propagated by planting ſlips or cuttings during the ſpring, in a border of light freſh earth. If the ſeaſon is very hot and dry, they muſt be watered and ſhaded till they have taken root, after which they will require no farther care but to keep them clean from weeds till autumn, when they ſhould be tranſplanted where they are deſigned to remain. But if the ground is not ready at that time to receive them, it will be proper to let them remain in the border till ſpring; for if they are tranſplanted late in autumn, they are liable to be deſtroyed by cold in winter.

The eighth ſpecies is an annual plant, and propagated only by ſeeds, which muſt be ſown the latter end of March upon a moderate hot-bed, and when the plants appear, they ſhould be treated like other hardy annuals. The latter end of May they ſhould be tranſplanted into a warm border of light earth, where they will flower, and in warm ſeaſons perfect their ſeeds.

All the other ſpecies are too tender to live through the winter, in the open air in England. They are eaſily propagated by planting cuttings in pots any time in ſummer, obſerving to ſhade and water them till they have taken root: after which they only require to be kept clean from weeds. In autumn they muſt be removed into the green-houſe, where they ſhould have a large ſhare of air admitted to them in warm weather, as they only require protection from hard froſt: for if they are too tenderly treated, their branches grow weak and unſightly.

Sea LAVENDER, *Limonium*, a genus of plants, of which there are eleven ſpecies. 1. Common great Sea Lavender. 2. Sea Lavender, with oblong, oval leaves, a ſpreading paniculated ſtalk, and ſhorter ſpikes of flowers. 3. Sea Lavender, with oval, obtuſe leaves, running foot-ſtalks, a paniculated ſtalk, and more upright ſpikes of flowers. 4. Sea Lavender, with ſpear-ſhaped leaves, a low ſpreading ſtalk, and ſlender ſpikes of flowers. 5. Sea Lavender, with narrow, ſpear-ſhaped leaves, a branching, ſpreading ſtalk, and flowers ranged thinly on one ſide the ſtalk. 6. Sea Lavender, with the lower leaves alternately ſituated like wings: thoſe upon the ſtalks three cornered, awl-ſhaped, and running along the foot-ſtalk. 7. Sea Lavender, with a ſpreading ſhrubby ſtalk, narrow, thick, ſpear-ſhaped leaves, and flowers growing ſingly, at a diſtance from each other. 8. Sea Lavender, with wedge-ſhaped leaves, an upright, paniculated ſtalk, and the under branches ſterile and naked. 9. Sea Lavender, with a paniculated, naked ſtalk, and ſpathula-ſhaped, blunt leaves. 10. Sea Lavender, with a naked, taper, paniculated ſtalk, and leaves ſet with tubercles. 11. Sea Lavender, with an upright, ſhrubby ſtalk, narrow, ſpear-ſhaped leaves, ending in obtuſe points, and flowers ranged alternately.

The firſt ſpecies is a native of this country. The roots are thick, of a reddiſh colour, with many ſtrong fibres, from which come out ſeveral oval, ſpear-ſhaped, ſmooth leaves, of a thick conſiſtence. The ſtalk is naked, and riſes upwards of a foot high, divided into many ſmall branches at the top, and terminated by ſlender ſpikes of pale blue flowers.

The ſecond ſpecies grows naturally in the ſouth of France, on the ſea-coaſt. The ſtalk riſes fifteen or ſixteen inches high, dividing into ſeveral ſpreading branches. The leaves are of an oblong, oval form, ſmooth, entire, and of a deep green. The ſtalks are terminated by ſhort ſpikes of pale blue flowers. This ſort never produces good ſeeds here.

The third ſpecies is a native of Narbonne and Provence. It has ſmall, oval, obtuſe leaves, ſtanding on long foot-ſtalks. The ſtem riſes a foot and a half high, ſending out branches alternately on each ſide, ſo as to form a looſe kind of pyramid, and are terminated by ſpikes of pale blue flowers, which are erect.

The fourth ſpecies is a native of England. The leaves are ſpear-ſhaped, about three inches long, and one broad in the middle, leſſening gradually to both ends. The ſtalk riſes four or five inches high, dividing into many ſpreading branches, which are very thick, ſet with ſhort ſpikes of pale blue flowers.

The fifth ſpecies is a native of the Levant. The leaves are about four inches long, and three quarters of an inch broad in the middle, diminiſhing gradually to both ends. The ſtalks are about five or ſix inches high, dividing into ſeveral ſpreading branches, which are terminated by ſhort ſpikes of pale blue flowers. This ſort flowers late in Auguſt, ſo never ripens ſeeds here.

The ſixth ſpecies grows naturally in Sicily and Paleſtine. The lower leaves, which ſpread on the ground, are indented almoſt to the middle rib: theſe indentures are alternate and blunt. The ſtalks riſe a foot and a half high, dividing upwards into ſeveral branches; at each joint appear three narrow leaves, ſitting cloſe to the ſtalks, from whoſe baſe proceeds a leafy membrane, or wing, which runs along on both ſides the ſtalk. The ſtalks are terminated by panicles of flowers, which ſit upon winged foot-ſtalks, each ſuſtaining three or four flowers, of a light blue colour, which continue long without fading. This is a biennial plant.

The ſeventh ſpecies is a native of Sicily. It has a ſhrubby ſtalk, which riſes about two feet high, dividing into ſeveral ligneous branches, which ſpread out on every ſide. The leaves are grey, and of a thick conſiſtence. The branches are terminated by panicles of blue flowers, which come out ſingly at a diſtance from each other, having long tubes, but divide into five ſegments upward, which ſpread open.

The eighth ſpecies is a native of Sicily, and has alſo been found growing naturally in Norfolk. The lower leaves are narrow at their baſe, but enlarge upwards, and are rounded at the top in the ſhape of a wedge. The ſtalks are ſlender and ſtiff, riſing from ſeven to fourteen inches high, ſending out many ſlender ſide branches; all thoſe which proceed from the lower part of the ſtalk are barren, having no flowers, but toward the top they have ſhort panicles of whitiſh flowers, which are ſmall, and ſit three or four together upon one foot-ſtalk.

The ninth ſpecies grows naturally near the ſea, about Marſeilles and Leghorn. It has many thick, fleſhy leaves, which are ſhaped like a ſpatula, growing near the root, which are ſmooth, of a greyiſh colour, and ſpread on the ground. The ſtalks are naked, and riſe about ſix inches high, dividing towards the top into many ſmall branches, which are terminated by ſhort, crooked panicles of ſmall flowers, of a pale red colour.

The tenth ſpecies grows naturally about Montpelier, and in Italy. It is an annual plant, and has long narrow leaves, which are ſet with rough tubercles. The ſtalks riſe about eight inches high, dividing into two or three ſmall branches, which are terminated by reflexed ſhort ſpikes of pale blue flowers, which appear late in Auguſt, ſo that the ſeeds are ſeldom perfected in England.

The eleventh ſpecies is a native of Egypt. It riſes with an upright ſhrubby ſtalk to the height of eight or ten feet, divided into many branches. The leaves are narrow, ſpear-ſhaped, of a thick conſiſtence, and a grey colour. The flowers are produced at the ends of the branches in looſe panicles, ſtanding alternate on each ſide the ſtalk; they have long tubes, which enlarge upwards, where they are cut into five obtuſe ſegments, which ſpread open. Their colour is a bright ſky-blue, which fades to a purple before they fall off.

Culture of the Sea LAVENDER.

The firſt, ſecond, third, fourth, and fifth ſpecies are abiding plants, which will thrive in the open air in England. Theſe plants may be tranſplanted at almoſt any time of the year, provided they are carefully taken up, preſerving ſome earth to their roots.

Theſe plants do not propagate very faſt in gardens, and unleſs they are planted in a moiſt ſhady border, ſeldom flower well; the beſt way to have them ſucceed, is to keep the plants in pots, and in ſummer to place them in a ſhady ſituation: but in winter they may be removed to a place where they may enjoy the ſun.

The ſeeds of the ſixth, eighth, ninth, and tenth ſpecies muſt be ſown in autumn, on a border of freſh earth, expoſed to the ſouth-eaſt. When the plants come up they muſt be kept clean from weeds, and if they are too cloſe, ſome of them ſhould be carefully taken up as ſoon as they are fit to remove, and planted in ſmall pots, placing them in the ſhade till they have taken root, after which they ſhould be ſet where they may have the morning ſun till autumn, when they muſt be put under a hot-bed frame, where they may be ſcreened from hard froſt, but enjoy the free air in mild weather.

Thoſe plants which were left in the border, ſhould be covered with mats in hard froſt, which, otherwiſe, would inevitably deſtroy them.

The following ſummer the plants will flower, and ſome of them will ripen their ſeeds, but it requires a very warm dry ſeaſon to bring thoſe of the ſixth and tenth ſorts to perfection; for which reaſon it is always beſt to obtain them, if poſſible, from the places where they grow naturally.

The ſeventh and eleventh ſpecies are ſhrubby plants, which are too tender to live through winter in the open air of our climate. They are eaſily propagated by cuttings, which ſhould be planted in July on a ſhady border, where they muſt be conſtantly watered, and in ſix or ſeven weeks they will take root, when they ſhould be taken up and planted in pots filled with light loamy earth, placing them in the ſhade till they have taken root: then they may be expoſed till October, at which time they muſt be removed into the green-houſe, and placed among the hardy plants, where they will continue great part of the winter, and make an agreeable variety.

Spurge LAUEL, Daphne. See DAPHNE.

LAUEOLA, a ſpecies of Daphne. See the article DAPHNE.

Cherry LAUREL. See *Cherry Laurel.*

LAURUS, Bay-tree. See the article BAY-TREE.

LAURUS ALEXANDRINA, a ſpecies of Ruſcus. See RUSCUS.

Sea-ſide LAURUS, or LAUREL, *Phyllanthus*, a genus of plants, of which there are five ſpecies. 1. Sea-ſide Laurel, with ſpear-ſhaped, ſawed leaves, having flowers growing on their edges. 2. Sea-ſide Laurel, with winged leaves, bearing flowers upon foot-ſtalks, and an upright herbaceous ſtalk. 3. Sea-ſide Laurel, with winged leaves, bearing flowers, ſitting cloſe, and a trailing herbaceous ſtalk. 4. Sea-ſide Laurel, with winged leaves, bearing flowers, and a tree-like ſtalk. 5. Sea-ſide Laurel, with oval, obtuſe, entire leaves.

The firſt ſpecies is a native of the Weſt-Indies. It riſes with a woody ſtalk, about fifteen or ſixteen feet high. The leaves appear without any order: on their edges the flowers are produced, eſpecially toward the upper part, where they are placed very cloſe; theſe, together with the ſhining green of the leaves, make a very beautiful appearance. The leaves continue green all the year.

The ſecond ſpecies is a native of both Indies. It riſes with an herbaceous ſtalk about a foot high, it branches out, and has winged leaves, compoſed of many oval lobes, under which the flowers are produced upon foot-ſtalks, ranged along the mid-rib; they are ſmall, of an herbaceous colour, and make no great appearance.

The ſtalks of the third ſpecies trail on the ground. They have winged leaves, with oblong lobes, under which the flowers are ranged along the mid-rib. This is alſo a native of both Indies.

The fourth ſpecies has a woody tree-like ſtalk, ſpreading into many branches, and the leaves are very narrow. The plants of this ſort have never produced flowers in England. It is a native of the Eaſt-Indies.

The fifth ſpecies is a native of the Weſt-Indies, where it becomes a tree of middling ſtature; the leaves are almoſt oval, of a light green on their upper ſide, but grey on their under, and very entire. The flowers of this ſort have never appeared in England.

Culture of the Sea-ſide LAUREL.

The firſt ſpecies is very difficult to propagate: for unleſs the ſeeds are ſown ſoon after they are ripe they will not grow, and often the greateſt part of the ſeed proves abortive.

The ſeeds ſhould be ſown in pots, and when the plants come up they muſt be removed each into a ſeparate pot, and in the winter placed in a moderate ſtove; but in ſummer they may be expoſed to the open air, in a warm, ſheltered ſituation.

The ſecond and third ſpecies are annual plants. They are propagated by ſeeds, which muſt be ſown in ſpring upon a hot-bed. When the plants come up, and are fit to remove, they ſhould be each put into a ſeparate ſmall pot, and plunged into a hot-bed of tanners-bark, ſhading them from the ſun till they have taken new root; after which they require the ſame management as other plants from hot countries.

They will perfect their ſeeds in autumn, at which time they muſt be carefully watched, or their huſks will open, and ſcatter the ſeeds into ſuch pots as are near them, where if the mould is not diſturbed, the plants will come up the following ſpring.

The ſeeds of the fourth and fifth ſpecies muſt be ſown in ſpring upon a hot-bed; when the plants come up they muſt be removed each into a ſeparate pot, and plunged into a tan-bed in the ſummer. In winter they muſt be removed into the bark-ſtove, where they ſhould always remain.

LAURUSTINUS, the name of two ſpecies of Viburnum. 1. The common Lauruſtinus. 2. Lauruſtinus, with ſhining leaves.

The firſt ſort riſes about five or ſix feet high. The leaves are about two inches and a half long, and one and a quarter broad; they are rounded at their baſe, but end in acute points, veined, and hairy on their under ſide, and of a lucid green on their upper. The flowers appear in autumn, and continue all the winter.

The ſecond ſort riſes higher, and the branches are ſtronger than thoſe of the former. The bark is ſmoother; the leaves are larger, of a thicker conſiſtence, and of a lucid green colour. The flowers are larger, and ſeldom appear till ſpring.

Culture of the LAURUSTINUS.

Both theſe ſorts are propagated by laying down their young branches, which put out roots very freely: ſo that when they are laid in autumn, they will be ſufficiently rooted by that time twelvemonth, to be taken off from the old plants, when they may be either planted where they are to remain, or into a nurſery, where they may ſtand two years.

The beſt time for tranſplanting theſe is at Michaelmas, that they may get new root before winter; though they may be removed in ſpring, with balls of earth to their roots, provided it is done before they begin to ſhoot.

Theſe plants may alſo be propagated by ſeeds, which ſhould be mixed with earth in autumn, ſoon after they are ripe; theſe ſhould be expoſed to the open air, and receive the rain in winter: and in the ſpring they may be ſown upon a gentle hot-bed, which will bring up the plants; they may remain in the bed till autumn, and then may be tranſplanted and treated in the ſame way as the layers.

LAWN, a ſpacious plain in a park, or adjoining to a noble ſeat. As to the dimenſions of a lawn, in a large park, it ſhould be as extenſive as the ground will permit, and, if poſſible, it ſhould be leſs than fifty acres: but in gardens of a moderate extent, a lawn of ten acres is ſufficient, and in thoſe of the largeſt ſize fifteen acres. The beſt ſituation for a lawn, is in the front of the houſe: and here, if the houſe front the eaſt, it will be extremely convenient: but the moſt deſireable aſpect for a Lawn, is that of the ſouth-eaſt. As to the figure of the Lawn, ſome recommend an exact ſquare, others an oblong ſquare, ſome an oval, and others a circular figure: but neither of theſe are to be regarded. It ought to be ſo contrived as to ſuit the ground, as there ſhould be trees planted for ſhade on the boundaries of the Lawn, ſo the ſides may be broken by irregular plantations of trees, which, if there are not ſome good proſpects beyond the Lawn, ſhould bound it on every ſide, and be brought round pretty near to each end of the houſe. If in theſe plantations round the Lawn, the trees are placed irregularly, ſome breaking much forwarder on the Lawn than others, and not crowded too cloſe together, they will make a much better appearance, and grow large, ſtraight, handſome, and produce a fine effect. The moſt proper trees for this purpoſe, are the Elm, Oak, Cheſnut, and Beech: and if there are ſome clumps of ever-green trees intermixed with the others, they will add to the beauty of the whole, eſpecially in the winter ſeaſon; the beſt ſorts for this purpoſe, are Lord Weymouth's Pine, and the Silver and Spruce Firs.

LAWSONIA, a genus of plants, of which there are two ſpecies. 1. Lawſonia, or Broad-leaved Egyptian Privet. 2. Lawſonia, with prickly branches.

The firſt ſpecies grows naturally in India, Egypt, and other warm countries, where it riſes with a ſhrubby ſtalk eight or ten feet high. The branches are ſlender, covered with a whitiſh yellow bark, and come out oppoſite. The leaves are ſmall, oblong, ending in acute points, and of a pale green. The flowers are placed at the ends of the branches in looſe bunches: they are of a dingy white, and compoſed of four ſmall petals, which turn backward at the top. Theſe are ſucceeded by roundiſh capſules, with four cells filled with angular ſeeds. The Arabians call this plant Alkenna, or Henna.

The ſecond ſpecies grows naturally in both Indies. It riſes with a woody trunk eighteen feet high, and ſometimes more, covered with a light grey bark. The branches are placed alternate. The leaves are oblong, oval, and ſtand without order; at the joints where the leaves are ſituated, come out ſingle, ſharp thorns. The flowers are produced in looſe bunches from the ſides of the branches: they are of a pale yellow, and have a diſagreeable ſcent. They are compoſed of three petals, which ſpread open; between each of theſe are ſituated two ſtrong ſtamina, terminated by roundiſh ſummits. After the flowers are paſt, the germen becomes a roundiſh capſule with four cells, including many angular ſeeds.

Culture of the LAWSONIA.

The plants are propagated by ſeeds, which ſhould be ſown on a hot-bed early in the ſpring, that the plants may have time to get ſtrength before winter. When they are fit to remove, they ſhould be each planted in a ſmall pot, and plunged into a hot-bed of tanners-bark, where they muſt be ſhaded from the ſun till they have taken new root; after which their treatment ſhould be the ſame as that of the Coffee-tree, with this difference only, not to keep them too warm, and to water them very ſparingly, eſpecially in the winter.

In the warmeſt part of ſummer theſe plants may be placed in the open air in a ſheltered ſituation: and in autumn they muſt be removed into the ſtove.

LAYERS, in gardening, are tender twigs or ſhoots of trees, part of which are laid or buried in the ground, till having ſtruck root, they are afterward ſeparated from the parent tree, and become diſtinct plants. Many plants and trees are propagated by laying, when all other methods fail; and particularly thoſe exotic trees which do not produce ſeeds with us. The operation is performed by ſlitting the branches from the middle of a joint upwards a little way (as is practiſed with Carnations) and laying them about half a foot in the ground; and if they are not pliable, they ſhould be pegged down with a hook; with ſome plants a twiſt at the place intended to ſtrike root will ſuffice, or by tying a piece of wire round the part, and making punctures with an awl juſt above the place of bandage.

If the branches intended to be layed are not within reach of the ground, then it will be neceſſary to make uſe of tubs or pots filled with proper mould, and placed on treſſels, poſts, or ſome ſuch conveniences, to receive the branches. The ſeaſon for laying down deciduous hardy trees is in October, but for ſuch as are tender, in March, and for ever-greens, June or Auguſt are good ſeaſons. Though layers may be laid down at any time, the before-mentioned ſeaſons are moſt proper for the reaſons following; becauſe they have the whole winter and ſummer to prepare and draw root; for at theſe times of the year the ſun has ſufficient power on the ſap of the tree to feed the leaf and bud, but has not power ſufficient to make a ſhoot; and if that ſmall quantity of ſap that ariſes be hindered, as it will by ſome of the preceding ways of laying, the leaves and buds will draw their nouriſhment from the layer, and by that means will prepare the layer to take root or put forth roots a little to maintain itſelf, finding it cannot have a proper ſupply from the mother plant. The harder the wood of a tree is, the young ſhoots will take root the beſt; but if the wood is ſoft, the older branches will more readily root, and conſequently ſooner make a tree.

LEADWORT, *Plumbago*, a genus of plants, of which there are two ſpecies. 1. Leadwort, with leaves embracing the ſtalks. 2. Leadwort, with the leaves on foot-ſtalks.

The firſt ſpecies is a native of the ſouthern parts of Europe; and the ſecond grows naturally in the Eaſt and Weſt-Indies. Both theſe plants have perennial roots.

Culture of the LEADWORT.

The firſt ſpecies is propagated by parting of the roots, at any time when the weather is mild, from the decay of the ſtalk in the winter till it begins to ſhoot in the ſpring. The roots ſhould be planted in a light ſoil and a warm ſituation, allowing them room to ſpread when the plants appear; they muſt be kept clean from weeds, and the ground between them dug every winter, which is all the culture they require.

The ſecond ſpecies is propagated by ſeeds, which ſhould be ſown on a good hot-bed in the ſpring. When the plants are fit to be removed, they ſhould be planted each into a ſeparate ſmall pot, filled with light loamy earth, and plunged into a hot-bed of tan, where they muſt be ſhaded from the ſun till they have taken freſh root, and afterwards treated like other tender exotics.

LEAF, *Folium*, a very eſſential and ornamental part of plants, whoſe chief office is to ſubtiliſe and give more ſpirit to the abundance of nouriſhing ſap, and to convey it to the buds of the future ſhoots, which are always formed either at the baſe of the leaf, or its foot-ſtalk: they likewiſe ſerve to cover the flowers and fruits with their ſhade, and keep them from many inconveniences; they are to trees what hair is to the human body.

Botaniſts conſider the leaves with regard to their ſtructure, ſurface, ſhape, conſiſtence, edges, ſituation, and ſize: with regard to their ſtructure, they are either ſingle, as thoſe of the apple, pear, and plumb-tree, or compound, as thoſe of the ſtrawberry, parſley, &c. a ſingle leaf is one which is either immediately joined to the branch or connected with it by a foot-ſtalk; a leaf is ſaid to be compound, when there are more than one upon a petiole or foot-ſtalk: with reſpect to their ſurface, they are either flat, as the origany, or in bunches, as the houſeleek: with regard to their ſhape, they are either lanceolated, cordated, acuminated, haſtated, &c. and are either thin and fine, as thoſe of the hypericum; or thick and groſs, as thoſe of purſlane; or fleſhy, as thoſe of ſeveral kinds of aloes; or woolly, as thoſe of marſh-mallows: with regard to their edges, leaves are cut ſlightly, as in ſome ſpecies of geums, or deep, as in ſome of the centaurys: with reſpect to their ſituation, they are either ranged alternately, as the alaternus; or oppoſite to each other, as the phillyrea, mint, baum, &c. with regard to their ſize, they are either very large, as thoſe of the muſa; or moderate, as thoſe of the fig and vine; or ſmall, as thoſe of the elm or apple tree; or very ſmall, as thoſe of the heath, phylica, &c.

Many ſorts of plants, whoſe roots iſſue forth from the ſmall end of the ſeed, put out two ſmall leaves that are very unlike thoſe which the plant afterwards produceth; for as ſoon as the root has taken hold of the ground, between theſe falſe leaves (commonly called the ſeed-leaves) there comes forth a ſhoot which produces leaves like thoſe of the mother plant; of this manner of growth there is an infinite number of plants.

Dr. Grew obſerves, that the fibres of leaves conſiſt of two general kinds of veſſels: viz. for ſap and for air: and are ramified out of greater into leſs, as veins and arteries are in animals.

Mr. Frederick of Augſbourg, a celebrated gardener, took from the tree a leaf of the opuntia or Indian fig-tree; and ſetting it in the earth, it immediately took root, and produced bloſſoms and fruit.

The diſtinction of leaves, made by thoſe who have written on botany, are the following.

A ſimple leaf is that which is not divided to the middle.

A compound leaf is divided into ſeveral parts, each reſembling a ſimple leaf, as in liquorice, &c.

A digitated leaf is a compound leaf, divided into ſeveral parts, all of which meet together at the tail, as in the hemp, black hellebore, &c.

A trifoliated leaf is a digitated leaf, conſiſting of three fingers, as the trefoil, &c.

A quinquefoliated leaf is a digitated leaf, conſiſting of five fingers, as in the quinquefolium.

A pennated leaf is a compound leaf divided into ſeveral parts, each of which is called a lobe, placed along the middle rib, either alternately, or by pairs. When the middle rib is terminated by an odd lobe, it is ſaid to be unequally pennated, as in the goats rue, &c. and equally pennated, when it is not terminated by an odd lobe, as in the caſſia; when the lobes are all nearly of the ſame form and bigneſs, it is called an uniform pennated leaf, as in the liquorice; when they are not ſo, it is ſaid to be difform, as in the agrimonia.

A winged leaf is, as it were, divided into ſeveral pennated leaves, as in the orobus, &c.

A ramoſe leaf is that which is ſtill farther divided than the winged leaf, as in the oſmund royal, female fern, &c.

An entire leaf or lobe is that which has no diviſion on its edges, as in the apple-tree, &c.

A ſinuated leaf is that which is cut about the edges into ſeveral long ſegments, as in common mallows.

A ſerrated leaf is that which is cut about the edges into ſeveral acute ſegments, reſembling the teeth of a ſaw, as in the nettle, &c.

A crenated leaf is that which is cut about the edges into ſeveral obtuſe ſegments, as in the betony, &c.

A lacinated or jagged leaf is that which is cut about the edges into ſeveral pretty deep portions, in an irregular manner, as in the horned poppy, &c.

If the ſurface of the leaves are altered, by reverſing the branches of trees on which they grow, the plants are ſtopped in their growth, until the foot-ſtalks are turned, and the leaves recover their former poſition. This ſhews how neceſſary it is to ſupport all thoſe weak ſhoots of plants, which are naturally diſpoſed for upright growth, which either twine about the neighbouring trees for ſupport, or that put out claſpers, by which they take hold of whatever trees or plants grow near them, and are thereby ſupported: and, on the contrary, how abſurd is that practice of tying up the ſhoots of thoſe plants which are naturally diſpoſed to trail upon the ground, for in both theſe caſes nature is reverſed, and conſequently the growth of both ſorts of plants is greatly retarded.

This is one of the great functions for which the leaves of trees and plants are deſigned; but, beſides this, there are others of equal importance to the well-being of plants and fruits; the firſt is, that of the foot-ſtalks and leaves nouriſhing, and preparing the buds of the future ſhoots, which are always formed at the baſe of thoſe foot-ſtalks, and during the continuance of the leaves in perfect health, theſe buds increaſe in their magnitude; and, in the deciduous trees, are brought to maturity before the foot-ſtalks ſeparate from the buds in autumn; but if by accident the leaves are blighted, or if the entire ſurface of the leaves are cut off, and the foot-ſtalks are left remaining, the buds will decay for want of that proper nouriſhment which is conveyed to them from the leaves: ſo that whenever trees are diveſted of their leaves, or thoſe leaves are cut, or otherwiſe impaired, though it may in either caſe happen when the buds may be nearly formed, yet if it is before the foot-ſtalks ſeparate naturally from their branches, the future ſhoots will be weakened in proportion to the time when this is done; therefore from all the experiments which have been made in order to know how ſerviceable the leaves of trees and plants are to their well-being, it has been found, that when the plants have been diveſted of their leaves, or their leaves have been eaten or cut, during their growth, the plants have been remarkably weakened thereby. This ſhould teach us not to pull or cut off the leaves of trees, or plants, on any account while they retain their verdure, and are in health; and this ſhews how abſurd that common practice is, of feeding down wheat in the winter and ſpring with ſheep; for by ſo doing, the ſtalks are rendered very weak, and the ears are in proportion ſhorter; nor are the grains of corn ſo plump and well nouriſhed, as that which is not fed down upon the ſame ground: this is a fact which we can aſſert from many years experience. It is very evident, that graſs which is often mowed, the blades will be rendered finer in proportion to the frequency of mowing it, yet the ſpecies of graſs is the ſame with that on the richeſt paſtures; ſo that although this may be a deſireable thing for lawns, &c. in gardens, yet where regard is had to the produce, this ſhould be avoided.

Another principal uſe of the leaves, is to throw off by tranſpiration what is unneceſſary to the growth of the plants, anſwering to the diſcharge made by ſweat in animal bodies; for as plants receive and tranſpire much more, in equal time, than large animals, ſo it appears how neceſſary the leaves are to preſerve the plants in perfect health; for it has been found by the moſt exact calculation, made from repeated experiments, that a plant of the ſun-flower receives and perſpires, in twenty-four hours, ſeventeen times more than a man.

We ſhall beg leave to mention a few, out of the many experiments which have been made by M. Bonnet, of Geneva, to prove that moſt leaves imbibe the moiſture of the air on their under ſurface, and not from their upper: they are as follows:

He gathered the leaves of ſixteen ſorts of herbaceous plants when fully grown; of each he put ſeveral leaves upon the ſurface of water in glaſs vaſes, ſome were poſited with their upper ſurface, and others with their under ſurface upon the water; theſe were adjuſted exactly to the ſurface of the water, with great care not to let any moiſture reach their oppoſite ſurfaces, and the ſame care was taken to prevent their foot-ſtalks from receiving any moiſture. The glaſſes in which theſe leaves were thus placed, were kept in a cloſet, where the air was very temperate; and as the water in the glaſſes evaporated, there was, from time to time, a ſupply of freſh, which was added with a ſyringe, ſo that the leaves were not diſturbed. The leaves were taken from the following plants; the plantain, the mullein, the wake Robin, the great mallow, the nettle, the marvel of Peru, the kidney-bean, the ſun-flower, the cabbage, the baum, the cock's-comb, the purple-leaved amaranth, ſpinach, and the ſmaller mallow.

Six of theſe ſorts he found continued green a long time, and theſe were with different ſurfaces upon the water: they were of the following ſorts, the wake Robin, the kidney-bean, the ſun-flower, the cabbage, ſpinach, and the ſmall mallow: among the others, the following ſorts were found to draw the moiſture better with their upper than with their under ſurface, the plantain, the mullein, the great mallow, the nettle, the cock's-comb, and the purple amaranth.

The leaves of the nettle, whoſe under ſurfaces were placed upon the water, were decayed in three weeks; whereas

whereas thoſe whoſe upper ſurfaces touched the water, laſted three weeks.

The leaves of the mullein, whoſe under ſurfaces were next the water, did not continue freſh more than five or ſix days, whereas thoſe whoſe upper ſurfaces were next the water, laſted five weeks.

The leaves of the purple amaranth, whoſe upper ſurfaces were next the water, continued freſh three months; whereas thoſe whoſe under ſurfaces touched the fluid, were decayed in a week.

The leaves of the marvel of Peru and the baum, appeared to have the advantage, whoſe under ſurfaces were next the water.

The leaves of the wake Robin, and of the cock's-comb, whoſe foot-ſtalks only were put into the water, continued freſh a longer time than thoſe which were placed with either ſurface upon the water.

The leaves of the great mallow, the nettle, the ſunflower, the marvel of Peru, and the ſpinach, whoſe foot-ſtalks were plunged into the water, continued freſh a ſhorter time, than thoſe which had either of their ſurfaces upon the water.

The leaves of the mullein, plantain, and amaranth, which received the water at their foot-ſtalks, continued freſh much longer than thoſe whoſe under ſurfaces touched the water.

It is not difficult to explain the reaſon of this fact; for the orifices of the ſap-veſſels in the foot-ſtalks are much larger than thoſe of either ſurface, ſo that the water inſinuates itſelf in greater quantities, and with more eaſe, in the firſt than by the ſecond way.

After this the ſame gentleman made experiments on the leaves of ſixteen ſorts of trees and ſhrubs, of the following ſorts: the lilac, the pear-tree, the vine, the aſpin, the laurel, the cherry-tree, the plum tree, the horſe-cheſnut, the white mulberry, the lime-tree, the poplar, the apricot, the walnut, the filbert, the oak, and the creeper.

Among theſe ſpecies he found, that the lilac, and the aſpin, imbibed the water equally with either their upper or under ſurface; but in all the other ſorts, the under ſurfaces imbibed it in much greater quantities than the upper. The difference was very remarkable in the leaves of the white mulberry, for thoſe whoſe upper ſurfaces were laid upon the water, faded in five days; whereas the others whoſe under ſurfaces were next the water, preſerved their verdure near ſix months.

The vine, the poplar, and the walnut, afforded very remarkable inſtances, how little diſpoſed the upper ſurfaces of the leaves of ligneous plants are to imbibe the moiſture: for the leaves of theſe three ſorts, whoſe upper ſurfaces were applied to the water, decayed almoſt as ſoon as thoſe which had no nouriſhment.

In all the experiments made by this curious gentleman upon the various leaves of trees and herbs, it is remarkable that all thoſe leaves, which imbibed their moiſture by their upper ſurface, were ſuch as had that ſurface covered over with hairs or down; and, on the contrary, where the under ſurface was garniſhed with either hairs or down, the nouriſhment was imbibed by that ſurface. He alſo mentions many experiments made by himſelf, and alſo by M. Duhamel de Monceau, of the Royal Academy of Sciences at Paris, in rubbing the leaves over with varniſh, oil, wax and honey, to ſee the effect of theſe upon various leaves, ſome of which were rubbed over on both ſurfaces, others only upon one; ſome only a part of the ſurfaces, others the edges of the leaves were rubbed over, and in ſome only the foot-ſtalks of the leaves. They likewiſe anointed the trunks of ſome trees and ſhrubs, leaving the leaves and branches in their natural ſtate.

The reſult of theſe experiments was, that where the leaves were covered with varniſh on both ſides, they preſently decayed; and where they were anointed with other things, the leaves continued a ſhorter time than others, in proportion as the things were more penetrating; and where one ſurface only was anointed, they continued much longer than thoſe which were anointed on both; and where the pedicle alone was anointed, they continued ſtill longer: but the anointing of the trunks made no ſenſible alteration, except in very hot weather; when they were both of opinion that anointing them were of ſervice, by hindering the too great tranſpiration, which tend to weaken the trees: for they obſerved that thoſe trees which were varniſhed, ſuffered leſs from the violent heats, than the trees which were left in their natural ſtate.

M. Bonnet alſo obſerved, that the tender parts of the leaves which were varniſhed were deſtroyed by it, and the tough fibres only left remaining.

We may therefore reaſonably conclude, that one great uſe of leaves is what has been long ſuſpected by many, viz. to perform, in ſome meaſure, the ſame office for the ſupport of vegetable life, as the lungs of animals do for the ſupport of animal life: plants, very probably, drawing through their leaves ſome part of their nouriſhment from the air. *Miller's Gard. Dict.*

LEEK, *Porrum*, according to Linnæus a ſpecies of allium; but conſidered by other authors as a diſtinct genus, of which there are two ſpecies. 1. Leek with an oblong coated root; a plain leaf on the ſtalk, flowers collected in heads, and three pointed ſtamina; commonly called London Leek. 2. Leek with a plain leaf on the ſtalk, which ſupports a globular umbel of flowers, whoſe ſtamina are longer than the petals.

The firſt ſpecies is commonly cultivated in our gardens; and the ſecond is a native of Siberia.

Culture of the LEEK.

The manner of propagating them is by ſeeds, and they are generally ſown along with onions. The onions grow firſt; and, after they are pulled up, the Leeks will have time enough to grow to their ſize.

Their culture is in every reſpect like that of the onion; to which, to avoid repetition, we refer the reader.

If you would ſave the ſeeds of this plant, make choice of ſome of the beſt and largeſt you have, which muſt remain in the place where they grow until February, when they ſhould be tranſplanted in a row againſt a warm hedge, pale, or wall, at about eight inches aſunder; and, when their ſtems advance, they ſhould be ſupported by a ſtring, to prevent their being broken down, to which accident they are very liable, eſpecially when in head. The cloſer they are drawn to the fence in autumn, the better the ſeeds will ripen; for it ſometimes happens in cold ſummers or autumns, that thoſe which grow in the open garden do not perfect their ſeeds in this country, eſpecially if there ſhould be ſharp froſts early in autumn, which will entirely ſpoil the ſeed.

When it is ripe, which may be known by the heads changing brown, you ſhould cut off their heads, with about a foot or more of the ſtalk to each; tie three or four heads together, and hang them up in a dry place, where they may remain till Chriſtmas or after, when you may threſh out the ſeeds for uſe.

LEGUME, *Legumen*, among botaniſts, ſignifies a pericarpium of an oblong, compreſſed figure, formed of two valves, joined by a viſible ſuture, both on the upper and under parts; and having the ſeeds affixed to the upper limbs of the two valves, in an alternate order.

This is alſo a term applied to a ſpecies of plants, otherwiſe called Pulſe, as peas, beans, &c.

LEGUMINOUS, an appellation given to all plants whoſe fruit is a legume.

LEMON-TREE, *Limon*, according to Linnæus, a ſpecies of *citrus*, but conſidered by other authors as a diſtinct genus.

There are ſeveral varieties of this fruit preſerved in Italy; and in both the Indies there are a great number, which have not yet been introduced to the European gardens, among the moſt remarkable ones which are found here, are, 1. The Lemon tree with variegated leaves. 2. The ſweet Lemon. 3. The pear-ſhaped Lemon. 4. The Imperial Lemon. 5. The Lemon called Adam's Apple. 6. The furrowed Lemon. 7. The childing Lemon. 8. The Lemon with double flowers.

Culture of the LEMON-TREE.

All the ſorts of Lemons are propagated by budding, or inarching them either on ſtalks of Lemons or Citrons, produced from ſeeds.

The culture of the Lemon-tree is the ſame with that of the Orange-tree, to which article we refer the reader; only obſerving here, that the common Lemons are ſomewhat hardier than the oranges, and will bring their fruit to maturity here better than they will do, and require to have a greater ſhare of freſh air in the winter.

Water-LEMON, a ſpecies of the paſſion-flower. See the article PASSION-FLOWER.

LEOPARDSBANE, *Arnica*, a genus of plants, ranged by Linnæus among the *ſyngeneſia polygamia ſuperflua*, and of which there are ſix ſpecies. 1. Leopardſbane with oval, entire leaves, and thoſe on the ſtalks growing oppoſite by pairs. 2. Leopardſbane with ſawed leaves growing alternately. 3. Leopardſbane with ſpear-ſhaped leaves, the lower ones ſawed, and a leafy many-flowered ſtalk. 4. Leopardſbane with oval indented leaves. 5. Leopardſbane with pennatified leaves and roundiſh lobes. 6. Leopardſbane with pinnated leaves, and narrow ſegments.

The three firſt ſorts are perennial plants, and natives of the north parts of Europe and America, and the fourth, fifth, and ſixth ſpecies, are natives of Ethiopia.

Culture of the LEOPARDSBANE.

The three firſt ſpecies are propagated either by ſeeds, or parting of the roots, in autumn, when the ſtalks begin to decay: the ſeeds ſhould alſo be ſown in autumn, ſoon after they are ripe; or if they are permitted to ſcatter, the plants will come up the following ſpring: they are hardy plants, and will grow in almoſt any ſoil or ſituation.

The other three ſpecies are alſo propagated either by roots or ſeeds, but they are too tender to live through the winter in the open air of our climate; at that ſeaſon therefore they ſhould be placed under a common hot-bed frame; but they muſt have the benefit of the free air in mild weather.

LEOPARDSBANE, *Doronicum*, a genus of plants ranged by Linnæus among the *ſyngeneſia polygamia ſuperflua*, and of which there are four ſpecies. 1. Leopardſbane with obtuſe heart-ſhaped leaves, thoſe from the roots having footſtalks, and thoſe above them embracing the ſtalk. 2. Leopardſbane with oval-pointed leaves, indented at bottom, and alternate branches. 3. Leopardſbane with ſpear-ſhaped indented leaves, woolly on their under-ſide, and one flower on a ſtalk. 4. Leopardſbane, with a naked ſingle ſtalk, having one flower.

Theſe are all perennial plants. The firſt ſpecies grows naturally in Hungary and the Helvetian mountains. The ſecond is a native of Portugal, Spain, and France. The third grows on the Helvetian and Pyrenean mountains; and the fourth is a native of Switzerland and Italy.

Culture of this LEOPARDSBANE.

The firſt and ſecond ſpecies multiply very faſt by their creeping roots; and if the ſeeds are permitted to ſcatter, they will produce plants wherever they happen to fall.

The third ſpecies is propagated either by ſeeds, or by parting of the roots. It delights in a moiſt ſoil and a ſhady ſituation.

The fourth ſort is only preſerved in botanic gardens for the ſake of variety.

LETTUCE, *Lactuca*, a genus of plants, ranged by Linnæus among the *ſyngeneſia polygamia æqualis*, and of which he diſtinguiſhes ſix ſpecies, but of theſe ſix one only is cultivated for uſe, and from that is raiſed a vaſt number of varieties.

The ſeveral varieties which are cultivated in the gardens of this country, and are all excellent ſallad herbs, which ſucceed one another in their ſeveral ſeaſons, are diſtinguiſhed as follows. 1. The common garden Lettuce. 2. The Cabbage Lettuce. 3. The Cilicia Lettuce. 4. The Dutch brown Lettuce. 5. The Aleppo Lettuce. 6. The Imperial Lettuce. 7. The green Capuchin Lettuce. 8. The Verſailles, or upright Cos Lettuce. 9. The black Cos. 10. The red Cos. 11. The red Capuchin Lettuce. 12. The Roman Lettuce. 13. The Prince Lettuce. 14. The Royal Lettuce. 15. The Egyptian Cos Lettuce.

Culture of the LETTUCE.

The firſt of theſe ſorts is very common in all gardens, and is uſually ſown for cutting very young to mix with other ſallad herbs. It may be ſown at all times of the year, but in the hot months it ſhould be ſown in ſhady borders, and in ſpring and autumn upon warm borders, and in winter under glaſſes, otherwiſe it is ſubject to be deſtroyed by ſevere froſts.

The Cabbage Lettuce is an improvement, by frequent cultivation, from the firſt ſort. It may be ſown at different ſeaſons, to have a continuation of it through the ſummer. The firſt crop is generally ſown in February, which ſhould be upon an open, warm ſpot of ground; and when the plants are come up, they ſhould be thinned out to the diſtance of ten inches each way, which may be done by hoeing them out, provided you have no occaſion for the ſuperfluous plants, otherwiſe they may be drawn up and tranſplanted into another ſpot of good ground at the ſame diſtance, where, if done before the plants are large, they will ſucceed very well, though they will not be ſo large as thoſe which were left upon the ſpot where they were ſown, but they will come ſomewhat later, which will be an advantage to thoſe who do not continue ſowing every fortnight.

Always obſerve in ſowing the ſucceeding crops, as the ſeaſon advances, to chuſe a ſhady, moiſt ſituation, that is not under the drip of trees, otherwiſe, in the heat of ſummer, they will run up to ſeed before they cabbage.

In the middle of Auguſt the laſt crop ſhould be ſown, which is to ſtand over winter. The ſeeds ſhould be ſcattered thin upon a good light ſoil, in a warm ſituation; and when the plants are come up, they muſt be hoed out ſo as to ſtand ſingly, and cut down all the weeds to clear them.

In the beginning of October they ſhould be tranſplanted into warm borders, where, if the winter is not very ſevere they will ſtand very well; but in order to be certain of a crop, it will be adviſable to plant a few upon a bed pretty cloſe, where they may be arched over with hoops, and in ſevere froſts they ſhould be covered with mats and ſtraw, or peaſe-haulm, to ſecure them from being deſtroyed. In the ſpring of the year they may be tranſplanted out into a warm, rich ſoil, at the diſtance before-mentioned.

In order to ſave good ſeeds of this kind, you ſhould look over your Lettuces when they are in perfection, and ſuch of them as are very hard and grow low, ſhould have ſticks thruſt into the ground, by the ſides of as many of them as you intend for ſeed, to mark them from the reſt, and you ſhould carefully pull up all the reſt from among them as ſoon as they begin to run up, leſt when they run up to flower they ſhould, by intermixing their farina with the flowers of the good ones, degenerate the ſeeds.

The Cilicia, imperial, royal, black, white, and upright cos Lettuces may be ſown at the following times: the firſt ſeaſon for ſowing theſe ſeeds is at the end of February, or the beginning of March, upon a warm light ſoil, and an open ſituation, not overſhadowed with trees: and, when the plants are come up, they ſhould be either hoed out or tranſplanted into another ſpot of ground, as was directed for the cabbage Lettuce, obſerving to leave theſe ſorts fifteen or ſixteen inches apart each way; which will be full near enough for theſe plants, eſpecially if the ſoil be good; and you muſt carefully keep them clear from weeds, which is the only culture they will require, except the black cos Lettuce, which ſhould be tied up when they are full grown, to whiten their inner leaves, and render them criſp; otherwiſe they are ſeldom good for much, rarely cabbaging without this aſſiſtance.

The ſeeds of theſe Lettuces ſhould be ſaved in the manner already directed for the cabbage Lettuce.

You may alſo continue theſe ſorts through the ſeaſon, by ſowing them in April, May, and June; obſerving to ſow the late crops in a moiſt ſhady ſituation, otherwiſe they will run up to ſeed before they grow to any ſize; but in Auguſt, toward the latter end, you may ſow of theſe ſorts, to abide the winter; which plants ſhould be tranſplanted either under glaſſes, or into a hot-bed, which ſhould be arched over with hoops, in order to be covered in winter, otherwiſe in hard winters they are often deſtroyed; but you muſt conſtantly let theſe plants have as much open free air as poſſible, when the weather is mild; only covering them in hard rains, or froſty weather; for if they are kept cloſely covered in winter, they will be ſubject to a mouldineſs which ſoon rots them.

In the ſpring theſe plants ſhould be planted out into a rich light ſoil, allowing them at leaſt eighteen inches diſtance each way: for if they are planted too cloſe, they are very ſubject to grow tall, but ſeldom cabbage well; and from this crop, if they ſucceed well, it will be proper to ſave the ſeeds; though ſome plants ſhould alſo be marked of the crop ſown in the ſpring, becauſe ſometimes it happens that the firſt may fail by a wet ſeaſon, when the plants are full in flower, and the ſecond crop may ſucceed, by having a more favourable ſeaſon afterwards.

The moſt valuable of all the ſorts of Lettuce in England are the Egyptian green cos, and the Verſailles or white cos, and the Cilicia or white cos; though ſome people are very fond of the royal and imperial Lettuces; but they ſeldom ſell ſo well in the London markets as the others, nor are ſo generally eſteemed. Indeed of late years, ſince the white cos has been commonly cultivated, it has obtained the preference of all the other ſorts, until the Egyptian green cos was introduced; which is ſo much ſweeter and tenderer than the white cos, that it is by all good judges eſteemed the beſt ſort of Lettuce known. This ſort will endure the cold of our ordinary winters full as well as the white cos; but at the ſeaſon of its cabbaging, if there happens to be much wet, this ſort, being very tender, is very ſubject to rot.

The brown Dutch and green capuchin Lettuces are very hardy, and may be ſown at the ſeaſons as was directed for the common cabbage Lettuce; and are very proper to plant under a wall or hedge to ſtand the winter; where many times theſe will abide, when moſt of the other ſorts are deſtroyed; and therefore they will prove very acceptable at a time when few other ſorts are to be had; they will alſo endure more heat and drought than moſt other ſorts of Lettuce, which renders them very proper for late ſowing; for it often happens, in very hot weather, that the other ſorts of Lettuce will run up to ſeed in a few days after they are cabbaged; whereas theſe will abide near three weeks in good order, eſpecially if care be taken to cut the forwardeſt firſt, leaving thoſe that are not ſo hard cabbaged to be laſt. In ſaving of theſe ſeeds, the ſame care ſhould be taken to preſerve only ſuch as are very large, and well cabbaged, otherwiſe the ſeeds will degenerate, and be good for little.

If theſe ſorts of Lettuce are planted upon a moderate hot-bed in autumn, and covered with a good frame, they may be ſo well cabbaged, as to be fit for uſe in February and March, and may be continued till thoſe in the open air are fit for uſe.

In ſaving ſeeds of all theſe ſorts of Lettuce, obſerve never to let two ſorts ſtand near each other, for by their farina mixing, they will both vary from their original and partake of each other. There ſhould alſo be a ſtake fixed down by the ſide of each, to which the ſtem ſhould be faſtened to prevent their being broken, or blown out of the ground by the wind, to which the Cilicia, cos, and the other large growing Lettuces, are very ſubject when they are in flower.

When the ſeeds begin to ripen, ſuch branches of the large growing Lettuces as ripen firſt, ſhould be cut, and not wait to have the ſeed of the whole plant ripe together, which never happens: and ſometimes many of the branches will ripen a fortnight or three weeks before the others. When they are cut they muſt be ſpread upon a coarſe cloth to dry; after which the ſeeds muſt be rubbed out and dried again, and then carefully hung out of the reach of mice and other vermin.

The red capuchin, Roman, and prince Lettuces are pretty varieties, and cabbage very early; for which reaſon a few of them may be preſerved; as may ſome of the Aleppo, for the beauty of its ſpotted leaves; though very few people care for either of theſe ſorts at table, when the other more valuable ones are to be obtained; but in a ſcarcity, theſe may ſupply the place pretty well; and theſe ſorts are very proper for ſoups. The ſeeds of theſe muſt alſo be ſaved from ſuch as cabbage beſt, otherwiſe they will degenerate, and be good for little.

Lambs LETTUCE, or CORN SALLAD, a ſpecies of Valerian.

This plant is found growing among the corn in ſeveral parts in England. It is cultivated in gardens as a ſallad-herb for the ſpring, but having a ſtrong taſte, which is diſagreeable to many palates, it is not ſo much in uſe as it was formerly.

Culture of the Lambs Lettuce.

It is propagated by ſeeds, which ſhould be ſown the latter end of Auguſt; when the plants come up they muſt be hoed to thin them where they grow too cloſe, and to deſtroy the weeds. Early in the ſpring the plants will be fit for uſe.

LIGNUM ALOES, a ſpecies of Sebeſten. See the article Sebesten.

LILY, *Lilium*, a genus of plants, ranged by Linnæus among the *hexandria monogynia*: he diſtinguiſhes ſeven ſpecies, and among theſe he includes the Martagon. There are many varieties of this genus, accounted diſtinct ſpecies by ſome other botaniſts.

The five following ſorts will be a ſufficient direction to the gardener for the culture of all the reſt.

Double Scarlet LILY. The root is large, round, and compoſed of numerous ſcales. The ſtalk is round, upright, firm, and two foot and a half high. The leaves are placed irregularly, and are very numerous: they are long, narrow, waved and ſharp-pointed: they are of a firm ſubſtance, and their colour is a very deep green. The rib is pale, and the whole leaf is of a ſhining ſurface. The flower ſtands on the top of the ſtalk, large, ſpecious, and in the higheſt degree ſingular. The colour is a fine deep ſcarlet, covered with ſpots of a duſky but not diſagreeable red. The petals are oblong, waved, and pointed, and of a fleſhy ſubſtance; their number is about thirty, and they ſtand open in the manner of rays of a ſtar.

Culture of this Lily.

This elegant variety can only be raiſed by ſeed, and when once obtained, muſt be increaſed by off-ſets. The plant, in its wild ſtate, is a native of the eaſt, and of ſome ſouthern parts of Europe, and it there grows always in a damp rich mould. This ſhould be the rule for its ſoil: a mixture of two parts meadow earth, and one part pond mud, with a little rotted cow-dung, will anſwer very well. The ſeeds ſhould be ſaved from a good flower, and ſown on a bed of this compoſt in Auguſt. They will require the common care of ſeedling bulbous plants, and when they come to flower, there will be many varieties. If a double one do not appear from this firſt ſowing, the whole muſt be repeated; and when one of theſe is obtained, the propagation muſt be by off-ſets, which encreaſes very faſt, and require the ſame ſoil. Once in three years the roots muſt be taken up, and their off ſets ſeparated. This ſhould be done in the end of July; and they ſhould then be planted again in beds of the ſame compoſt.

Scarlet Chalcedonian LILY. The root of this is bulbous, and hung with many fibres. The ſtalk is round, thick, two foot and a half in height, and hollow; of a pale green, ſpotted in the lower part with red, and marked with rays from the head of the bulb. The leaves ſtand irregularly, and are numerous; their colour is a freſh green, and at the edges they ſhew a little hairyneſs. They are ribbed and ſharp-pointed, oblong, and large near the middle. The flowers are large and beautiful: their colour is a fine ſcarlet. The flower riſes naked from the foot-ſtalk, and is compoſed of ſix petals, which unite at the bottom. The filaments are ſix, and they are crowned with large ſcarlet buttons. The ſeed-veſſel, from whoſe rudiment it riſes, is oblong, and marked with ſix furrows, and contains in three valves numerous ſeeds in double rows.

Culture of this Lily.

This plant is propagated either by ſeeds or off-ſets, and the following compoſt is proper for both.

Mix equal parts of rich meadow earth and pond mud, add to a barrow of theſe a buſhel of wood-pile earth and a peck of ſoot: let this lie expoſed to the air ſome months, turning it at times; chuſe a part of the garden that lies dry and open, fronting the ſouth-eaſt: dig out the mould from part of a border, and fill up the place with this compoſt.

In the beginning of September let the off-ſets be planted in this bed at a foot diſtance, and covered two inches with mould, and every year afterwards they muſt be taken up and planted again in a freſh ſoil at the ſame ſeaſon.

Thus may the plant be propagated with little trouble, and its flowers this way will be equal to thoſe of the original root: but if the gardener intends improvement, he muſt raiſe it from ſeeds in the following manner:

Let him mark for ſeed two or three plants when in flower, ſelecting ſuch as have a great deal of red upon the ſtalk, and have the leaves tinged with brown: they ſhould be ſuch as promiſe many flowers, but he muſt only ſuffer three to blow upon each, and the ſtronger the colour of theſe the better. When the ſeeds are ripe they muſt be ſaved with great care, and dried on a papered ſhelf.

The ſecond week in Auguſt prepare a bed in a part of the ſeminary open to the morning ſun: make it with the ſame compoſt, ſcatter on the ſeeds, and cover them a quarter of an inch. The bed muſt be weeded often, and watered as there may be occaſion; and when the plants come up they muſt be thinned where they grow too thick. In Auguſt let the bulbs be carefully taken up, and planted in a freſh bed at more diſtance, and in the beginning of the September following, let them be again removed and planted at a foot diſtance.

The ſucceeding year they will flower, and the gardener will find a great variety among them, but he muſt not depend on the firſt year's bloom, for they often alter after this. When they flower the ſecond ſummer, let him mark the fineſt, and thoſe moſt differing from one another; theſe, when the roots are taken up in the ſucceeding autumn, ſhould be planted at fifteen inches diſtance, in a bed made up in the flower-garden, according to the directions already given for managing the off-ſets; and the others may be planted out in common borders, for there will be few but what are worthy a place in the garden.

After this the finer kinds muſt be taken up every autumn, and their off ſets ſeparated; and they muſt every ſeaſon have a freſh quantity of compoſt.

The Striped LILY. The root is bulbous, and compoſed of a multitude of nuclei or thick ſcales. The leaves are long, moderately broad, waved at the edges, obtuſe, and of a freſh green: tinged along the edge with a duſky brown. The ſtalk is round, thick, upright, and two feet and a half high; the colour a pale green, tinged variouſly with brown or purple. The flowers terminate and crown the ſtalk in an elegant tuft, ſix or eight of them together; they are large and very fragrant, white, and ſtreaked along every petal with a rib of the moſt delicate crimſon. The form of the flower is perfectly the ſame with that of the common white Lily. The filaments are ſix, they are ſmalleſt toward the top, and they are crowned with oblong, large, incumbent buttons.

Culture of this Lily.

This plant is a native of the eaſt, and thrives in a rich ſoil where there is open air and ſome moiſture. The flower ripens its ſeed freely, and affords off-ſets very plentifully, and may be encreaſed and propagated from either. The method by off-ſets is very eaſy. When the leaves are decayed after the ſeaſon of flowering, the roots muſt be taken up, and at that time there ſhould be two beds dug up, one in the garden, the other in the nurſery: that in the garden is for the reception of the old roots again, and it may either be in the ſame ſpot with change of mould, or in another: that in the nurſery is for receiving the off-ſets, and nouriſhing them till they are of a ſize to flower ſtrongly. The off-ſets being all taken off, muſt be planted at eight inches diſtance in the nurſery bed, and covered an inch with the mould; the old roots ſhould be allowed fifteen inches diſtance every way. The roots muſt be taken up once every year: this not only affords more off-ſets for propagation, but the old roots flower much ſtronger for being cleared of them. They are to be planted again as ſoon as cleared from theſe. When the off-ſets have ſtood in the nurſery bed till they flower ſtrongly, they are to be brought into the garden, and treated juſt as the others. This is the method of encreaſing the ſtriped Lily by off-ſets, and thus it will retain its nature; but the elegance of colouring and farther variation, is only to be had by a careful ſowing of the ſeeds.

To this purpoſe let a good plant be marked for ſeed, and encouraged to ripen them perfectly, by ſuffering only the three firſt flowers which open to remain, and by frequent watering and breaking of the ſoil. Let the ſtalk be tied up to a firm ſtake, to prevent the accidents from winds; and when the ſeed-veſſels are tolerably hardened upon the plant, let them be taken off, and laid for a fortnight upon a papered ſhelf, turning them every day; then open them, take out the ſeeds, ſpread them upon the ſhelf, and air them ten days: at the end of this time they will be fit for ſowing. Dig out a piece of ground in a part of the nurſery which is well ſheltered, but open to the morning ſun; fill up the place with freſh mould taken from under the turf in a rich paſture, and ſcatter on the ſeeds. Sift over them a finger's breadth of the ſame mould, and lay ſome branches of a thorn-buſh over the bed, to prevent accidents. The bed muſt always be kept clean from weeds, and when the plants come up let them be thinned where they riſe too cloſe, and from this time carefully watered; if they are expoſed to the noon ſun, the bed muſt be ſhaded by a reed-hedge.

In the beginning of Auguſt let a large bed of the ſame earth be prepared, and let the mould be taken off the ſurface of the ſeed-bed ſo deep as to take up all the roots; let this earth with the roots in it, for they are too ſmall to plant ſeparate, be ſpread carefully over the ſurface of the new bed, and ſift over it half an inch more of the ſame mould. In ſevere weather cover it with ſome pea-ſtraw, and in ſpring ſtir the ſurface very lightly and gently, ſo as not to diſturb the roots, and ſift on half an inch more of the mould; the leaves will ſoon appear, and the bed muſt be carefully weeded, and well watered in dry ſeaſons, a little at a time, but often repeated. In the September following make up a large bed, and ſeparate the roots by ſifting the mould of the firſt bed. Plant them in this new bed at four inches diſtance, ſee the heads are placed upwards, and ſift over them more mould till they are covered one inch. The ſecond year after this removal they will flower, and there will be found an elegant variety; as a great quantity of the ſeed of the common white Lily would have a chance to raiſe ſome ſtriped flowers, ſo there will probably be from the ſeed of the ſtriped ſome white ones, but the ſtriped ones will be very numerous, and there will be among them a great deal of variation. Theſe roots muſt be managed as we have before directed for the off-ſets; they muſt be taken up every year, and planted at four inches diſtance, in a nurſery bed to gather ſtrength; the grown roots thus cleared, muſt be planted again as at firſt, only in freſh mould.

Late Bulbiferous LILY. The root is large, bulbous, and compoſed of numerous looſe ſcales, white and juicy. The ſtalk is firm, thick, upright, a yard high, frequently a little flatted, and of a pale green, tinged variouſly with yellow, brown or purple. The leaves ſtand irregular upon it, and are numerous; they are oblong, moderately broad, undivided at the edges, and ſharp-pointed: of a deep green colour, often tinged with brown, and marked with ſtrong ribs lengthways. The flowers are very large and beautiful: they crown the ſtalk two or more together, and they are wide expanded, and of a deep crimſon, mixed with a tinge of orange: the riſing ſpots on the inſide of the petals are of a deep blood colour, and there is a richneſs in the whole flower, exceeding very much the other orange Lilies. The form of the flower is that of the common Lily: it riſes without any cup from the head of the foot-ſtalk, and is compoſed of ſix long and large petals, which unite at the bottom in a ſmall campanulated baſe, and at the extremities they are thick and fleſhy. In the centre ſtand ſix filaments, with large oblong buttons, and in the midſt of them a ſingle ſtyle. This is terminated by a thick triangular head, and riſes from an oblong rudiment of a ſeed-veſſel, marked with ſix ridges. This afterwards ripens into a large ſeed-veſſel of the ſame form, large, and formed of three valves, with three cells loaded with ſeeds, in a double ſeries.

The bulbs, whence it obtained its name, are certain ſolid lumps, which appear in the boſoms of their leaves. Their form is oval, or nearly ſo: their texture looſe, and their ſubſtance juicy; they have no foot-ſtalks, but adhere to the main ſtem of the plant by their baſe, juſt where the leaf alſo adheres: and their colour is green, tinged like the ſtalk and leaves, occaſionally with yellow, brown or red. Theſe bulbs appear with the leaves, and ſwell, and obtain ſoon after their due bigneſs; after this they drop off, and taking root, produce new plants, in the ſame manner as ſeeds would do, but much quicker; they continue to be produced in great abundance till the plant has come to the full ſtrength of flowering, but after that they grow from time to time leſs numerous, till upon a ſtrong ſtem there will not be more than four or five.

Culture of this Lily.

It is a native of the warmer parts of Europe, but it bears without hazard the open air, and full ground in our gardens, and requires no compoſt: for nothing ſuits it better than the common mould. There are three different methods of cultivating or raiſing the plant; the firſt by off-ſets from the root, the ſecond by ſeeds, and the laſt by theſe bulbs produced in the boſoms of the leaves. If we wanted varieties, we ſhould propoſe the method by ſeeds: but the flower is naturally ſo beautiful, that the change muſt be for the worſe. The propagation by off-ſets weakens the main plant; for it muſt ſtand three years in order to produce any quantity.

For theſe reaſons the bulbs are preferable to any other method of propagation. They are to be taken off when perfectly ripe, and they will flower the ſecond year. The ſoil is to be the common garden mould: the bulbs muſt be planted at a foot diſtance, and covered half an inch, and not to be removed any more till after flowering. They will require no other care but weeding and watering, and when they have flowered they ſhould be taken up: the latter end of September is the beſt time; the bed ſhould be new dug, the roots cleaned from their off-ſets, and then planted again at the ſame diſtance. They will thus flower in perfect beauty from year to year, and they will always produce abundance of new bulbs from the young plants, ſo that ſowing is quite needleſs.

Double White LILY. The root is ſcaly, and forms a large bulb. The ſtalk is a yard high. The leaves are long, moderately broad, and waved at their edges: and the flowers crown the diviſions of the ſtalk at the top, and the ſhoots which riſe from the boſoms of the upper leaves. They are long and irregular, white as in the common Lily, but compoſed of more numerous petals.

Culture of this Lily.

The firſt production of it muſt be from ſeed, but after it is once obtained, the propagation and increaſe will be eaſy from off-ſets of the root, taken away at the time of removing it after flowering. The beſt way of raiſing double flowers from the ſeed of the ſingle, is by allowing a large ſeed-bed, and ſowing a ſufficient quantity; this muſt be repeated a ſecond and a third time, if they do not ſucceed the firſt: for if the double flower is not produced, there will be always remarkable fine plants of the common kind. When by repeated ſowings the expected kind is produced, it ſhould be nurſed with care for the production of off-ſets, it ſhould be allowed a good ſoil, a great deal of room, and frequent waterings, and it ſhould not be ſuffered to exhauſt itſelf in flowering. At the end of this time it muſt be taken up, and the offſets being removed, muſt be planted at ten inches diſtance, in a nurſery-bed, to gain ſtrength; and when they are fit for flowering, they are to be taken into the gardens.

LILY *Aſphodel*, or *Day* LILY, *Hemeracallis*, a genus of plants, ranged by Linnæus among the *hexandria monogynia*, and of which there are two ſpecies. 1. Lily Aſphodel, with a branching ſtalk, and a flower conſiſting of one petal. 2. Lily Aſphodel, with a ſingle ſtalk, and bell-ſhaped flowers, conſiſting of ſix petals; called Savoy Spiderwort.

The firſt ſpecies is a native of Hungary, Dalmatia, and Iſtria. It has ſtrong fibrous roots, to which hang tubers like thoſe of the Aſphodel, from which come out keel-ſhaped leaves a foot and a half long. The flower-ſtalks riſe naked about two feet high, having two or three longitudinal furrows; at the top they divide into three or four ſhort foot-ſtalks, each ſuſtaining one pretty large yellow flower, ſhaped like a Lily, having but one petal, with a ſhort tube, ſpreading open at the brim, where it is divided into ſix parts; theſe have an agreeable ſcent.

The ſecond ſpecies is a plant of humbler growth than either of the former; there are two varieties of this: the firſt of theſe riſes with a flower-ſtalk more than a foot and a half high; the flowers are much larger, and there is a greater number upon each ſtalk than of the ſecond. The leaves of this ſort are ſomewhat like thoſe of the Spiderwort, are pretty firm and grow upright. The flower-ſtalks grow about a foot high, and have ſeveral white flowers at the top, ſhaped like thoſe of the Lily, which hang on one ſide, and have an agreeable ſcent; theſe are but of ſhort duration, ſeldom continuing in beauty above three or four days: but when the plants are ſtrong, they will produce eight or ten flowers upon each ſtalk, ſo they make a good appearance while they laſt.

Culture of the Lily *Aſphodel.*

The firſt ſpecies is eaſily propagated by off-ſets, which the roots ſend out in great plenty, and may be taken off in autumn, that being the beſt ſeaſon for tranſplanting of the roots, and planted in any ſituation, for they are extremely hardy, and will require no other culture but to keep them clean from weeds, and to allow them room, that their roots may ſpread: they may alſo be propagated by ſeeds, which, if ſown in autumn, the plants will come up the following ſpring, and theſe will flower in two years; but if the ſeeds are not ſown till ſpring, the plants will not come up till the year after. The ſecond ſpecies is uſually propagated by parting the roots: autumn is the beſt time for doing this. Theſe plants ſhould not be tranſplanted oftener than every third year, when the roots may be parted to make an increaſe of the plants, but they ſhould not be divided too ſmall, for if they are it will be two years before they flower; they delight in a light loamy ſoil, and in an open expoſure, ſo muſt not be planted under the drip of trees; but if they are planted to an eaſt aſpect, where they may be protected from the ſun in the heat of the day, they will continue in beauty longer than when they are more expoſed.

LILY DAFFODIL, Amaryllis. See the article Amaryllis.

LILY of the VALLEY, or SOLOMON's SEAL, *Convallaria*, a genus of plants, ranged by Linnæus among the *hexandria monogynia*, and of which there are ten ſpecies. 1. White Lily of the Valley. 2. Broad-leaved Lily of the Valley. 3. Common broad-leaved Solomon's Seal. 4. Broad leaved Solomon's Seal, with a large ſweet flower. 5. Greateſt broad-leaved Solomon's Seal. 6. Broad-leaved Solomon's Seal, with a a white hellebore-leaf. 7. Lily of the Valley, with leaves growing in whorls. 8. Lily of the Valley, with leaves ſitting cloſe to the ſtalks, which are terminated by compounded ſpikes of flowers. 9. Lily of the Valley, with many leaves embracing the ſtalks, which are terminated by ſingle bunches of flowers. 10. Lily of the Valley, with heart-ſhaped leaves.

The firſt ſort grows naturally in great plenty in the woods near Wobourn, in Bedfordſhire. This hath a ſlender fibrous root, which creeps under the ſurface of the ground. The leaves come up by pairs: their foot-ſtalks, which are about three inches long, are wrapped together in one cover, and at the top divide into two parts, each ſuſtaining a ſingle leaf, one of which riſes a little above the other; theſe leaves are from four to five inches long, and near an inch and an half broad in the middle, leſſening gradually to both ends; the foot-ſtalks of the flowers ariſe immediately from the root, on one ſide the leaves: theſe are naked, about five inches long, and are adorned towards their upper parts with pendulous white flowers, ranged on one ſide the ſtalk, which decline to one ſide; each flower ſtands upon a ſhort ſeparate foot-ſtalk, which are crooked. The flowers are open, of the ſhort bell-ſhaped kind: they have ſix ſtamina, which are inſerted in the petal of the flower, and are ſhorter than the tube, and a ſingle ſtyle ariſing from the germen, which is triangular, and crowned by a three-cornered ſtigma: the germen afterwards becomes a globular berry, of a red colour when ripe, incloſing three roundiſh ſeeds.

The ſecond ſort grows on the Alps. The third ſort is the common Solomon's Seal, which is ſuppoſed to grow wild in this country. This plant hath a fleſhy white root, which creeps in the ground, and is full of knots. In the ſpring ariſe ſeveral taper ſtalks, which grow near two feet high, adorned with oblong oval leaves, placed alternately: on the oppoſite ſide come out the foot-ſtalks of the flowers, which are about an inch long, dividing at the top into three or four ſmaller, ſuſtaining a ſingle tubulous flower, cut into ſix parts at the brim: theſe have each ſix ſlender ſtamina, ſurrounding a ſingle ſtyle, which ariſe from the germen, and is crowned by a blunt ſtigma: the germen afterwards becomes a round berry, each incloſing three ſeeds.

The fourth ſpecies doth not riſe ſo high as the third, the leaves are broader: it hath fewer flowers on each foot-ſtalk, and thoſe are much larger, and ſmell ſweet. The fifth ſort riſes much higher, the leaves are broader, there are many more flowers on each foot-ſtalk, which have longer and narrower tubes than either of the former. This grows naturally in the northern parts of Europe.

The ſixth ſpecies hath large fleſhy roots, full of knots or joints, which ſend up many ſtalks four feet high, and above two inches broad. The flowers come out on the oppoſite ſide of the ſtalks from the leaves, having ſhort foot-ſtalks, which divide into three ſmaller, each ſuſtaining one flower, with a long ſlender tube, more cloſed at the top than thoſe of the other ſpecies, but the colour is the ſame. The ſeventh ſpecies riſes with an upright ſtalk, about two feet high, having long narrow leaves, which ſtand in whorls round the ſtalk: there are generally five of theſe placed at each joint, they are four inches long, and half an inch broad, ſmooth, and of a light green. The flowers come out from the ſame joints, ſtanding upon ſhort foot-ſtalks, each ſupporting five or ſix flowers, which are ſmaller, and have much ſhorter tubes than either of the former ſorts; they are of a dirty white, tipped with green, and ſlightly cut into ſix parts at the top.

The eighth ſpecies grows naturally in moſt parts of North America. This riſes with an upright ſtalk above two feet high, with oblong leaves ending in ſharp points, which are near five inches long, and two and an half broad. The leaves are alternate, ſtanding cloſe to the ſtalks, and are of a light green on their upper ſide, but are paler on their under. The flowers are produced in branching ſpikes at the extremity of the ſtalks, each being compoſed of ſeveral ſmall looſe ſpikes of ſtar-like flowers, of a pale yellow, which fall away without producing any ſeed.

The ninth ſpecies is a native of the ſame country as the eighth: this ſends up ſtalks two feet high, which have oblong leaves. The flowers are produced in ſingle ſpikes at the top of the ſtalks, which are in ſhape and colour like thoſe of the eighth: but theſe are ſucceeded by ſmall red berries, about the ſize of thoſe of the Lily of the Valley.

The tenth ſort is an humble plant, which when tranſplanted into gardens, ſeldom riſes above ſix inches high, and where it grows naturally not much more than half ſo high; this hath a fibrous creeping root, which ſpreads and multiplies greatly in the ground, ſending up many ſlender ſtalks, each having for the moſt part two heart-ſhaped leaves, one ſtanding above the other. The ſtalks are terminated by looſe ſpikes of white ſtar-like flowers, which are ſucceeded by ſmall red berries.

Culture of the LILY of the VALLEY.

The firſt and ſecond ſpecies love a looſe ſandy ſoil, and a ſhady ſituation; they are propagated by parting of their roots, which multiply in great plenty: they ſhould be planted a foot aſunder, that their roots may have room to ſpread: for if they agree with the ſoil and ſituation, they will meet and fill the ground in one year. If theſe roots are planted in a rich ſoil, they will ſpread and multiply greatly, but will not be ſo productive of flowers. The only culture which theſe plants require, is to keep them clean from weeds, and to tranſplant and ſeparate the roots every third or fourth year, otherwiſe they will be ſo greatly matted together as not to have proper nouriſhment, ſo the flowers will be but ſmall, and few in number.

All the ſpecies of Solomon's Seal are very hardy plants, and delight in a light ſoil and a ſhady ſituation, ſo are very proper to plant in wilderneſs quarters, under tall trees, where, if they are not crowded by lower ſhrubs, they will thrive and multiply exceedingly, and during the ſummer ſeaſon will make an agreeable variety. They all multiply very faſt by their creeping roots, eſpecially when they are planted in a proper ſoil and ſituation. The beſt time to tranſplant and part the roots is in autumn, ſoon after their ſtalks decay; thoſe which are removed at that ſeaſon, will grow much ſtronger than thoſe which are planted in the ſpring: but they may be ſafely tranſplanted any time after the ſtalks decay, till the roots begin to ſhoot in the ſpring. As theſe roots greatly increaſe, ſo they ſhould be planted at a wide diſtance from each other, that they may have room to ſpread: for they ſhould not be removed oftener than every third or fourth year, where they are expected to grow ſtrong, and produce a good number of ſtalks, in which their beauty conſiſts. The only culture theſe plants require, is to dig the mould between them every ſpring, and keep them clean from weeds.

Belladona LILY, a ſpecies of Amaryllis. See AMARYLLIS.

Bloody LILY, or AFRICAN TULIP. See AFRICAN TULIP.

Ceylon LILY, a ſpecies of Amaryllis. See AMARYLLIS.

Day LILY. See LILY *Aſphodel*.

Guernſey LILY, a ſpecies of Amaryllis. See the article AMARYLLIS.

Jacobœan LILY, a ſpecies of Amaryllis. See AMARYLLIS.

Perſian LILY, a ſpecies of Fritillary. See FRITILLARY.

Superb LILY, *Glorioſa*, a genus of plants, ranged by Linnæus among the *hexandria monogynia*, of which he diſtinguiſhes one ſpecies only.

This plant is perennial, and a native of Malabar. It has oblong fleſhy roots, of a whitiſh colour, from which riſe a round weak ſtalk, and grows to the height of eight or ten feet. The leaves are placed alternate; they are ſmooth, about eight inches long, and one and a half broad at the baſe, growing narrower till within two inches of the end, which runs out in a narrow point, terminated by a tendril, or claſper, by which it faſtens itſelf to any neighbouring ſupport. The flowers are ſituated on the upper part of the ſtalk, ſtanding upon ſlender foot-ſtalks: they are compoſed of ſix oblong petals, ending in acute points. On their firſt opening they are of a yellowiſh herbaceous colour, and ſtand erect, but when fully opened hang downward, in the manner of the Fritillaries; the petals turn quite back, and change to a beautiful red colour, their acute points meeting at the foot-ſtalk. This plant flowers in July, and often perfects ſeeds in this country.

Culture of the Superb LILY.

It is propagated by parting of the roots, which ſhould be taken out of the ground in autumn, after the ſtalks decay, and preſerved in ſand in the ſtove, or a warm room, during the winter. In the ſpring theſe muſt be planted in pots filled with light earth, and plunged in the tan-bed in the ſtove.

Towards the end of March or beginning of April, their ſtalks will appear, when ſome tall ſticks ſhould be put down by them to ſupport them, otherwiſe they will trail over the neighbouring plants. In ſummer they require frequent but gentle waterings.

Thoſe roots which are not taken out of the pots in winter, ſhould be tranſplanted and parted the beginning of March, before they put out new fibres and ſtalks, for they muſt not be removed when in a growing ſtate. The pots in which theſe roots are planted ſhould not be too large, for unleſs they are confined, they will not put out ſtrong ſtalks.

Water LILY, *Nymphæa*, a genus of plants, of which there are ſeveral ſpecies: moſt of them grow in very warm climates, and are never cultivated in this country. The two following are natives of England. 1. Water Lily, with a large five-leaved empalement; or yellow Water Lily. 2. Water Lily, with heart-ſhaped, entire leaves, and a four-pointed empalement, or white Water Lily.

They are both found in ſtanding waters in many parts of England, having large roots, which are faſtened in the ground, from which the ſtalks riſe to the ſurface of the water, where the leaves expand and float: they are large and roundiſh, and thoſe of the ſecond ſpecies are heart-ſhaped. The flowers riſe between the leaves, and ſwim upon the ſurface of the water. Theſe appear in July, and the ſeeds ripen in Auguſt.

Culture of the Water LILY.

The beſt method of propagating theſe plants is to procure ſome of their ſeed-veſſels juſt as they are ripe, and ready to open; theſe ſhould be thrown into canals, where the ſeeds will ſink to the bottom, and the following ſpring the plants will appear floating upon the ſurface of the water, and in June or July will produce their beautiful large flowers.

When they are once fixed to a place, they will multiply exceedingly, ſo that in a few years the whole ſurface of the water will be covered with them.

LIME-TREE, *Tilia*, a genus of plants, ranged by Linnæus among the *polyandria monogynia*, and of which there are only two ſpecies. 1. Lime-tree, with flowers that have no nectarium. 2. Lime-tree, with flowers furniſhed with a nectarium.

The firſt ſpecies of this tree grows naturally in many parts of England, and other countries of Europe, and contains ſeveral varieties. The ſecond ſpecies is a native of Virginia, Canada, and other countries in North America.

Culture of the LIME-TREE.

Both ſpecies are eaſily propagated by layers, which in one year will take good root, when they ſhould be removed into the nurſery, and planted at four feet diſtance in rows, and the plants two feet aſunder in each row. The beſt ſeaſon for removing them is Michaelmas. They ſhould remain four or five years in the nurſery, and may then be removed to the places where they are deſigned to remain. They ſucceed beſt in a ſtrong, fat, loamy ſoil.

Theſe trees may alſo be propagated by cuttings; and when large trees are required, they ſhould be raiſed from ſeeds ſown in autumn, ſoon after they are ripe, upon a ſhady border of moiſt, light ſoil. When the plants come up they ſhould be managed in the manner already directed for thoſe raiſed from layers.

LION's-FOOT, *Catananche*, a genus of plants, ranged by Linnæus among the *ſyngeneſia polygamia*: of which he reckons three ſpecies. 1. Lion's-foot, with the under ſcales of the cup oval. 2. Lion's-foot, with the under ſcales of the cup ſpear-ſhaped. 3. Lion's-foot, with cut leaves.

The firſt ſpecies grows naturally in the ſouth of France. The ſecond is a native of Crete; and the third of the maritime parts of Greece. They are all annual plants.

Culture of the LION's-FOOT.

Theſe three ſpecies propagated by ſeeds, which ſhould be ſown in March on beds or borders of light earth, where they are to remain. When the plants come up they will only require the common care of being kept clean from weeds, and thinned where they grow too cloſe.

LION's-TAIL, *Leonurus*, a genus of plants, ranged by Linnæus among the *didynamia gymnoſpermia*: of which there are four ſpecies. 1. Lion's-tail, with ſpear-ſhaped, three lobed leaves on the foot-ſtalk; or common Motherwort. 2. Lion's-tail, with oval, ſpear-ſhaped, ſerrated leaves, and ſeſſile, prickly cups. 3. Lion's-tail, with leaves divided into three parts, which are cut in their edges, and with hairy cups. 4. Lion's-tail, with leaves divided into three parts, which terminate with narrow, blunt ſegments.

The firſt ſpecies is a perennial plant: it grows naturally in many parts of England, and other countries in Europe, but is never cultivated in gardens except for the ſake of variety. The other ſpecies, which are biennial plants, grow naturally in different parts of Europe.

Culture of the LION's-FOOT.

They are propagated by ſeeds, which in ſpring muſt be ſown upon a bed of common earth. When the plants come up, they muſt be kept clear of weeds, and thinned where they grow too cloſe. In autumn they may be tranſplanted to the places where they are deſigned to remain, and they will require no farther culture.

LIPPIA, a genus of plants, of which there is but one known ſpecies.

This plant is a native of the Indies, where it riſes to the height of ſixteen or eighteen feet. The branches come out oppoſite, as do alſo the leaves, which are oblong, pointed, and a little ſawed on their edges. From the wings of the leaves come out foot-ſtalks, which ſuſtains many round ſcaly heads, about the ſize of a large pea, in which are many ſmall yellow flowers appearing between the ſcales, which are ſucceeded by ſeed-veſſels.

Culture of the LIPPIA.

This plant will not thrive in our climate, unleſs it is preſerved in a warm ſtove, and plunged in the bark-bed, obſerving to admit a large ſhare of air to it in warm weather, allowing frequent waterings, and treating it in every reſpect in the manner of other tender ſhrubby plants, which are natives of the ſame country.

LIQUORICE, *Glycyrrhiza*, a genus of plents, ranged by Linnæus among the *diadelphia decandria*: of which there are three ſpecies. 1. Liquorice, with prickly pods. 2. Liquorice, with ſmooth pods; or the common Liquorice. 3. Liquorice, with hairy pods.

The firſt ſpecies grows naturally in Apulia and Tartary; the ſecond in Franconia, France, and Spain; and the third in the Levant.

Culture of the LIQUORICE.

The firſt and third ſpecies are never propagated in any other than botanic gardens.

The ſecond ſpecies is cultivated to great advantage in many parts of England, particularly at Pontefract in Yorkſhire, and about Godalmin, in Surry.

Liquorice delights in a rich ſandy ſoil, which ſhould be three feet deep at leaſt: for the greateſt advantage conſiſts in the length of its roots.

The ground deſigned for Liquorice muſt be well dug, and dunged the year before, that the dung may be thoroughly rotted in it: and juſt before it is planted, the earth ſhould be dug three ſpades deep, and laid very light.

The plants which are to be ſet ſhould be taken from the ſides or heads of the old roots, and each muſt have a very good bud or eye, otherwiſe they are very ſubject to miſcarry: they ſhould alſo be about ten inches long, and perfectly ſound. The beſt ſeaſon for planting them is the end of February, or the beginning of March, and this muſt be done in the following manner.

Rows muſt be marked by a line drawn acroſs the bed at two feet diſtance, and the plants muſt be ſet in theſe, making a hole ſomething more than their full depth, that the eye of the root may be an inch below the ſurface: and they muſt be allowed two feet diſtance from each other in every row. When this is done, the ground may be ſown over with onions, which not rooting deep, will do the Liquorice no injury for the firſt year. In October, when the ſtalks of the Liquorice are decayed, a little very rotten dung ſhould be ſpread over the ſurface of the ground.

Three years after the time of planting, the Liquorice will be fit to take up for uſe; and this ſhould be done juſt when the ſtalks are dead: for if taken up ſooner, the roots are apt to ſhrink greatly in their weight.

The roots about London look browner than thoſe which have beeh propagated in a leſs rich ſoil, but then they are much larger, and grow quicker to their ſize.

Wild LIQUORICE, LIQUORICE VETCH, or MILK VETCH, *Aſtragulus*, a genus of plants, ranged by Linnæus among the *diadelphia decandria*: of which there are twenty ſpecies: ſome of them are never admitted into gardens; and all thoſe which are, require the ſame manner of culture.

Culture of the Wild LIQUORICE.

It is propagated by ſeeds, which ſhould be ſown in April. When the plants are come up, let them be thinned ſo as to be left at the diſtance of eighteen inches every way; after which they muſt be kept clean from weeds, which is all the culture they require.

LIRIA, a genus of plants, which has no Engliſh name, and only one known ſpecies.

This plant, though ſuperior to moſt we cultivate, is little known in our gardens. The root is a regular bulb, of a brown colour, and a firm ſubſtance. The leaves riſe three or four in a cluſter, embracing each other at the baſe: and there are uſually ſome ſmall, imperfect or decayed ones about their bottoms: theſe are of a yellowiſh hue, the others of a very elegant green, of a blueiſh tinge, and ſtained lightly with purple at the baſe. They are broad, oblong, waved a little at the edges, and terminate in a point.

The ſtalk riſes a foot or more in height, naked, firm, purpliſh at the bottom, and green on the upper part; the top bends with the weight of a large ſingle flower. It is at firſt contained in a ſcabbard, of an oblong, pointed form, which burſting into three parts, diſcloſes the perfect flower. This is in the higheſt degree ſingular, as well as beautiful. It is compoſed of ſix diſtinct petals, three broad and three narrow; the three broad which ſtand upwards are of the moſt perfect ſcarlet: the three lower are variegated with green and yellow, both very ſtrong and lively colours, and they have their points tipped with crimſon. In the centre of the flower riſe three filaments, which have their place under the uppermoſt petal, and are of a pale fleſh-colour, with large buttons of a deeper ſcarlet than the flower. Down the middle of each of the lower petals there alſo runs a vein of deeper red: and along the midſt of each of the three upper, there runs a like vein, with ſeveral ſmaller broken lines, with the ſame degree of red; this gives the whole flower a grace unknown almoſt to any other.

Culture of the LIRIA.

This plant is a native of Africa, where it grows on the ſides of hills in a looſe but not barren ſoil: from thence the roots may be obtained; and the time of taking them up ſhould be when the leaves are faded. At their coming into Europe they muſt be planted each in a ſeparate pot, with a mixture of three parts paſture earth, and one part ſand, and placed in the ſhade.

Once in a week they ſhould have a little water till they ſhoot: after which they muſt be removed into an opener place, where the ſun has more power, and watered gently every evening.

Towards autumn they muſt be removed into the greenhouſe, and thence into the ſtove, where, with the common care of foreign bulbous plants, they will produce their moſt conſpicuous and elegant flowers. The plant thus once eſtabliſhed, there will be no fear of multiplying the roots, for they will produce off-ſets, which being taken off once in three years, will riſe to perfection by the ſame methods.

LIVE-EVER, or *Leſſer* ORPINE. See the article *Leſſer* ORPINE.

Noble LIVERWORT, Hepatica. See the article HEPATICA.

LOAM, a common ſuperficial earth, conſiſting of clay with a ſmall admixture of ſand in it.

LOBELIA, a genus of plants, which has no Engliſh name; there is only one ſpecies of it.

This plant riſes with a ſucculent ſtalk, five or ſix feet high. The leaves are oval, oblong, placed alternately, and ſit cloſe to the ſtalk. The flowers are produced upon long foot-ſtalks, each ſuſtaining two or three white flowers of one petal, cut into five acute ſegments at the brim. It grows naturally in many iſlands in the Weſt-Indies.

Culture of the LOBELIA.

It is propagated by ſeeds, which muſt be procured from the places where it is native. Theſe ſhould be ſown in pots, and plunged into a hot-bed of tanners-bark, where the plants will appear in about five or ſix weeks, if the bed is kept warm, and the earth often watered.

When the plants are about two inches high, they ſhould be carefully taken out of the pots in which they were ſown, and each planted in a ſeparate ſmall pot, and then plunged into the hot-bed again, obſerving to ſhade them in the heat of the day till they have taken new root. The plants may remain in this hot bed till the middle, or latter end of September, when they muſt be removed into the ſtove, and plunged into the tan-bed, where they muſt be treated in the ſame manner as other tender exotic plants, which require a ſtove to preſerve them through the winter.

LOCKER GOWLANS, a ſpecies of Globe Ranunculus. See the article *Globe* RANUNCULUS.

LOCULAMENTS, the cell or hollow compartments of a capſule, in which the ſeeds are lodged. See the article CAPSULE.

LOCUST, or CAROB-TREE. See the article CAROB-TREE.

LOCUST-TREE, *Hymenæa*, a genus of plants, of which there is only one known ſpecies.

This tree grows in great plenty in the Weſt-Indies, where it becomes large and ſpreading. The ſtem is covered with a ruſſet bark, and divides into many ſpreading branches. The leaves are ſmooth, ſtiff, and ſtand by pairs, their baſe joining at their foot-ſtalk. The flowers are produced in looſe ſpikes at the ends of the branches, ſome of the foot-ſtalks ſupporting two, and others three flowers, which are compoſed of five yellow petals, ſtriped with purple. The ſtamina are much longer than the petals, of a purpliſh colour. The flowers are ſucceeded by brown pods, which contain four ſeeds.

Culture of the LOCUST-TREE.

It is raiſed from ſeeds, which muſt be procured from America, and ſown in pots, and plunged into a hot-bed of tanners-bark. The beſt method is to put but one ſeed into each pot: or if there is more, when the plants appear, they ſhould be all, except one, drawn out, and if great care is not taken, the plant intended to be left will be drawn out with the others: it ſhould therefore be done while the plants are quite young, that the roots may not be entangled with each other.

The roots of this plant are very ſlender, which makes it difficult to tranſplant: for unleſs a ball of earth is preſerved to them, they ſeldom ſurvive their removal, therefore they muſt ſeldom be tranſplanted from one pot to another. They muſt conſtantly remain in the tan-bed in the ſtove, and ſhould be treated in the ſame way with other tender exotics, giving them but little water, eſpecially in winter.

Honey-LOCUST. See the article HONEY-*Locuſt*

LOGWOOD. *Hematoxylum*, a genus of plants, of which there is but one ſpecies.

This tree grows naturally in the bay of Campeachy, at Honduras, and other parts of the Spaniſh Weſt Indies, where it riſes from ſixteen to twenty-four feet high. The ſtems are generally crooked and no thicker than a man's thigh. The branches, which come out on every ſide, are crooked, irregular, and armed with ſtrong thorns. The leaves are winged, and compoſed of three or four pair of obtuſe lobes, indented at the top. The flowers come come out in a racemus from the wings of the leaves, ſtanding erect; they are of a pale yellowiſh colour, with a purple empalement.

Culture of the LOGWOOD.

The ſeeds of thic tree are frequently brought from America, which, if freſh, readily grow, when ſown upon a good hot-bed. When the plants come up, they ſhould be tranſplanted on another hot-bed, which, if kept in a moderate degree of heat, the plants will riſe a foot high the ſame year. They are very tender, ſo ſhould be conſtantly kept in the bark-ſtove, where, if they are duly watered, and the ſtove kept in a good degree of heat, they will ſucceed extremely well.

LONDON-PRIDE, a ſpecies of Saxifrage. See the article SAXIFRAGE.

LOOSE-STRIFE, *Lyſimachia*, a genus of plants ranged by Linnæus among the *pentandria monogynia*, and of which he diſtinguiſhes eleven ſpecies; but four of theſe only are cultivated in gardens; the reſt growing wild in many parts of England. 1. Looſe-ſtrife, with ſingle bunches of flowers terminating the ſtalks, and obtuſe petals to the flowers, and ſtamina ſhorter than the petals. 2. Looſe-ſtrife, with ſpear-ſhaped ſpreading ſpikes of flowers terminating the branches, and ſtamina longer than the petals. 3. Looſe-ſtrife, with leaves placed by fours, and foot-ſtalks placed in whorls round the ſtalks, each ſuſtaining a ſingle flower. 4. Looſe-ſtrife, with hairy foot-ſtalks, and nodding flowers.

The firſt ſpecies is an annual plant, which grows naturally in Media. The ſecond ſpecies grows naturally in the Eaſt, and is alſo an annual plant. The third ſpecies is a native of Holland, and has perennial creeping roots. The fourth ſort is a native of Canada, and has alſo a perennial creeping root.

Culture of the LOOSE-STRIFE.

The firſt kind is propagated by ſeeds, which ſhould be ſown early in the ſpring, in the place where the plants are to remain: when they come up, they ſhould be kept clean from weeds, and thinned to the diſtance of four or five inches, where they grow too cloſe. The ſecond ſpecies is alſo propagated by ſeeds, which ſhould be ſown in autumn, ſoon after they are ripe; and from thoſe the plants will come up the following ſpring: they muſt be kept clean from weeds till autumn, and then planted in the border of the pleaſure-garden, where they will flower and produce ripe ſeeds the ſummer following. The third and fourth ſpecies are eaſily propagated by their creeping roots, without any culture.

LOPPING, the cutting off the ſide branches of trees. It is very obſervable that moſt old trees are hollow within; which does not proceed from the nature of the trees, but is the fault of thoſe who have the management of them, who ſuffer the tops to grow large before they lop them; as the aſh, elm, hornbeam, &c. and perſuade themſelves, that they may have the more great wood; but in the mean time do not conſider that the cutting off great tops endangers the life of a tree; or at beſt wounds it ſo, that many trees yearly decay more in their bodies than the yearly tops come to; and at the ſame time that they furniſh themſelves with more great wood, they do it at the loſs of the owner. And, indeed, though the hornbeam and elm will bear great tops when the body is little more than a ſhell; yet the aſh, if it comes to take wet at the head, very rarely bears more top after the body of the tree decays. Therefore, if once theſe trees decay much in the middle, they will be worth little but for the fire: ſo that if you find a timber-tree decay, it ſhould be cut down in time that the timber be not loſt.

The lopping of young trees that is at ten or twelve years old at moſt, preſerves them much longer, and will occaſion the ſhoots to grow more into wood one year, than they do in old tops at two or three. Great boughs, ill taken off, ſpoil many a tree; for which reaſon they ſhould always be taken off cloſe and ſmooth, and not parallel to the horizon; and cover the wound with loam and horſe-dung mixed, to prevent the wet from entering into the body of the tree. When trees are at their full growth, there are ſeveral ſigns of their decay; and as the withering or dying of many of their top branches; or if the wet enters at any knot; or they are any wiſe hollow or diſcoloured; if they make but poor ſhoots; or if wood-peckers make any hole in them.

This lopping of trees is only to be underſtood for pollard-trees; becauſe nothing is more injurious to the growth of timber-trees, than that of lopping or cutting off great branches from them. Whoever will be at the trouble of trying the experiment upon two trees of equal age and ſize, growing near each other, to lop or cut off the ſide branches from one of them, and ſuffer all the branches to grow upon the other, will, in a few years, find the latter to exceed the other in growth every way; and this will not decay near ſo ſoon. All ſorts of reſinous trees, or ſuch as abound with a milky juice, ſhould be lopped very ſparingly; for they are ſubject to decay when often cut. The beſt ſeaſon for lopping theſe trees is ſoon after Bartholomew-tide; at which time they ſeldom bleed much, and the wound is commonly healed over before the cold weather comes on. *Miller's Gard. Dict.*

LORANTHUS, a genus of plants for which there is no Engliſh name, and only one ſpecies. This plant is a native of America. It riſes with a ſhrubby ſtalk eight or ten feet high, dividing into ſeveral branches. The leaves are oblong, and have three longitudinal nerves. The flowers grow at the ends of the branches in ſmall cluſters. Their colour is a bright ſcarlet; and they are ſucceeded by oval berries, with a pulp covering a hard ſhell, which incloſes a number of ſeeds.

Culture of the LORANTHUS.

This plant is propagated by ſeeds, which ſhould be ſown as ſoon as they are ripe, for if they are kept out of the ground long, they ſeldom grow, or if they do, it is not till the next year.

The ſeeds ſhould be ſown in pots, and kept the firſt ſummer in a moderate hot-bed; in autumn they muſt be removed into the ſtove, and plunged into the tan-bed, where the earth muſt be kept moiſt. In the ſpring they muſt be taken out, and placed in a freſh moderate hot-bed, which will bring up the plants, which muſt be planted each in a ſeparate ſmall pot, and kept in the bark-ſtove, where they muſt be treated in the manner directed for other tender plants from the ſame country.

LOTE, or NETTLE-TREE, *Celtis*, a genus of plants ranged by Linnæus among the *polygamia monoecia*, of which there are four ſpecies. 1. Lote-tree with ſpear-ſhaped pointed leaves, which are veined and ſawed on their edges. 2. Lote-tree with oblique, oval leaves, which are ſawed on their edges. 3. Lote-tree with oval, heart-ſhaped leaves, ſlightly indented, and ſhort foot-ſtalks. 4. Lote-tree with oblong, oval, obtuſe, nervous leaves.

The firſt ſpecies riſes with an upright ſtem to the height of forty or fifty feet. The branches are ſlender, and covered with a dark-coloured bark. The leaves are placed alternate, they are near four inches long, and two broad in the middle, ending in long ſharp points, and deeply ſawed on their edges. The flowers are placed at the wings of the leaves all along the branches; they appear in ſpring, and generally decay before the leaves have attained half their ſize; they have no petals, but a green herbaceous empalement, ſo make no appearance; they are ſucceeded by a round black berry.

It is a native of the ſouth of France, Spain, and Italy.

The ſecond ſpecies is a native of North America, where it grows to a large ſize, riſing with a ſtrait ſtem, and branching out on every ſide. The leaves are oblique, oval, ending in acute points, and ſawed on their edges. The flowers ſtand oppoſite to the leaves upon long foot-ſtalks, which, as well as thoſe in the firſt ſpecies, are male and hermaphrodite; the latter are preceded by round berries of a dark purple colour.

The third ſpecies is a native of Armenia. It riſes to the height of ten or twelve feet. The branches ſpread on every ſide, and are covered with a ſmooth greeniſh bark. The leaves are oblique, about an inch and a half long, and one inch broad, and of a pale green: they are placed alternate on the branches, and have ſhort foot-ſtalks. The flowers are placed in the ſame manner as thoſe of the ſecond ſpecies.

The fourth ſpecies grows naturally in Jamaica, where it riſes with a ſtrait trunk near twenty feet high, dividing into many branches upwards. The leaves are near four inches long, and two and a half broad, round at their extremity; their upper ſurface is very ſmooth, and the under of a lucid gold colour: they ſtand alternate on the branches.

Culture of the LOTE *or* NETTLE-TREE.

The firſt, ſecond, and third ſpecies are propagated by ſeeds, which ſhould be ſown ſoon after they are ripe, if they can be procured at that ſeaſon, for theſe frequently come up the following ſpring: whereas thoſe which are ſown in the ſpring, never come up till the next year.

The beſt way is to ſow them in pots or tubs, that may be eaſily removed. In ſummer they muſt be conſtantly kept clean from weeds, and if the ſeaſon proves dry, they will require water two or three times a week. In autumn the pots muſt be placed under a hot-bed frame, or where there is not that conveniency they ſhould be plunged into the ground near a wall or hedge, and covered with mats, ſtraw, or peaſe-haulm, to protect them from froſts.

The following ſpring the plants ſhould be taken out of the pots, and planted in the full ground: this ſhould be done about the middle or latter end of March, when the ſevere froſts are generally over: for this purpoſe a bed or two ſhould be prepared, according to the number of the plants raiſed, in a ſheltered ſituation, and a gentle loamy ſoil. The ground muſt be well trenched, and cleared from the roots of bad weeds, and, when levelled, ſhould be marked in rows at one foot diſtance; then the plants muſt be carefully turned out of the pots and ſeparated, ſo as not to tear their roots, and planted ſix inches aſunder in the rows, preſſing the earth down cloſe to the roots. If the ground is very dry when they are planted, and there is no appearance of rain, it will be proper to water the beds, to ſettle the ground to the roots of the plants, after which there ſhould be ſome old tan or rotten dung laid upon the ground, which will keep it moiſt, and prevent the drying winds from penetrating to the roots of the plants.

The plants may remain in the nurſery beds two years, by which time they will have obtained ſufficient ſtrength to be tranſplanted where they are deſigned to remain; for as theſe plants extend their roots very far every way, if they ſtand too long in the nurſery, they may be injured in removing, which would be a prejudice to the future growth of the trees.

The fourth ſpecies is alſo propagated by ſeeds, which ſeldom come up the firſt year. They ſhould be ſown in pots, and plunged into the tan-bed in the ſtove, where they ſhould remain till the plants come up. They muſt be conſtantly kept in the bark-ſtove, and treated in the ſame manner as other tender exotics.

LOTUS, *Birds-foot Trefoil*, a genus of plants, ranged by Linnæus among the *diadelphia decandria*, and of which he enumerates fifteen ſpecies. 1. Lotus, with ſingle membranaceous quadrangular pods, and ſpear-ſhaped bracteæ. 2. Lotus, with ſingle membranaceous, quadrangular pods, and oval bracteæ; commonly called winged Pea. 3. Lotus, with conjugated, membranaceous, quadrangular pods, and oblong, oval bracteæ. 4. Lotus, with an erect ſtalk, terminated by a ſingle taper, and an erect pod. 5. Lotus, with ſingle, convex, incurved pods. 6. Lotus, with two narrow, compreſſed, nodding pods. 7. Lotus, with erect, linear, ſtrait pods, growing in pairs, an erect ſtalk, and alternate foot-ſtalks. 8. Lotus, with five-arched, compreſſed pods, and diffuſed ſtalks. 9. Lotus, with three pods, an erect, herbaceous ſtalk, and narrow leaves. 10. Lotus, with heads divided in the middle, a ſhrubby ſtalk, and ſhining leaves. 11. Lotus, with hairy heads, an erect hairy ſtalk, and oval pods. 12. Lotus, with globular heads, an erect ſtalk, and ſtrait, ſmooth pods. 13. Lotus, with depreſſed heads, trailing ſtalks, and cylindrical pods. 14. Lotus, with heads divided into two equal parts, a very branching, diffuſed ſtalk, and woolly leaves. 15. Lotus, with naked heads, and leaves placed by fives, ſitting cloſe to the branches; or the Dorycnium of Montpelier.

The firſt, ſecond, third, fourth, ſixth, and eighth ſpecies are natives of the ſouthern parts of Europe. The fifth ſort grows naturally in Sicily, Italy, and Crete.

The ſeventh and thirteenth ſpecies grow naturally in many parts of England, and are rarely admitted into gardens. Their roots are perennial, and difficult to get out where they have had long poſſeſſion of a piece of ground. The ninth ſpecies is an annual plant, which grows naturally in the iſland of St. James. The tenth and eleventh ſpecies are perennial plants, which grow naturally in the ſouth of Europe. The twelfth is ſeldom cultivated, except in botanic gardens for the ſake of variety. The fourteenth and fifteenth ſpecies are natives of the ſouth of Europe.

Culture of the LOTUS.

The firſt, ſecond, third, fourth, fifth, ſixth, eighth, fourteenth, and fifteenth ſpecies are propagated by ſeeds, which ſhould be ſown where the plants are to remain. When they come up, let them be thinned, and left at the diſtance of two feet, and afterwards kept clean from weeds.

The ninth, tenth, and eleventh ſpecies are propagated by cuttings during the ſummer ſeaſon, planted on a bed of light earth, covering them with a bell or hand-glaſs, and ſcreening them from the ſun. In about five or ſix weeks they will have taken root, when they ſhould be inured to bear the open air, and ſoon after planted in pots filled with freſh light earth, and placed in the ſhade till they have taken root: then they may be removed to a ſheltered ſituation, where they muſt remain till autumn. The ninth ſpecies is too tender to live in the open air of this country: the plants therefore muſt be kept in pots in the winter, and placed in a warm, airy glaſs-caſe.

LOVE-APPLE. See the article *Love*-APPLE.

LOVE-APPLE, or TOMATAS, *Lycoperſicon*, a genus of plants, of which there are ſeven ſpecies. 1. Love-apple, with an herbaceous, unarmed ſtalk, pinnated, cut leaves, and a ſmooth round fruit. 2. Love-apple, with a very hairy herbaceous ſtalk, winged, cut leaves, and a compreſſed, furrowed fruit; commonly called Tormatas by the Spaniards. 3. Love-apple, with an herbaceous, erect, unarmed ſtalk, oval, angular, indented leaves, with a few ſpines, and a roundiſh, furrowed fruit. 4. Love-apple, with an herbaceous, unarmed ſtalk, leaves unequally winged, whoſe lobes are bluntly indented, and reflexed ſpikes. 5. Love-apple, with an unarmed, herbaceous ſtalk, winged, cut leaves, which are waved, and a longer permanent ſtyle to the flower. 6. Love-apple, with an herbaceous, trailing ſtalk, wing-pointed, ſmooth leaves, and flowers growing ſingly from the wings of the ſtalk. 7. Love-apple, with an unarmed, herbaceous ſtalk, and winged leaves, which are entire, commonly called Potatoe: by the Indians Batatas.

The firſt ſpecies is an annual plant, with an herbaceous, branching, hairy ſtalk, which will riſe to the height of five or ſix feet if ſupported, otherwiſe the branches will fall to the ground; they have winged leaves, of a very rank and diſagreeable odour, compoſed of four or five pair of lobes, terminated by an odd one: theſe are cut on their edges, and end in acute points. The flowers come out from the ſide of the branches, upon pretty long foot-ſtalks, each ſuſtaining ſeveral yellow flowers ranged in a ſingle long bunch, which are ſucceeded by round, ſmooth, pulpy fruit, about the ſize of a large cherry. There are two varieties of this, one with yellow, and the other with red fruit.

The ſecond ſort is very like the firſt, excepting the ſhape and ſize of the fruit, which differ greatly: for thoſe of the ſecond ſpecies are very large, compreſſed at both ends, and deeply furrowed on the ſides.

The third ſort is annual; this riſes with an erect, herbaceous ſtalk, a foot and a half high, dividing in ſeveral branches, with oval, angular leaves, placed alternately upon pretty long foot ſtalks, which have one or two ſhort ſpines upon the mid-rib of the leaves. The flowers are white, and come out ſingly from the ſides of the branches, which are ſucceeded by red, ſtriated fruit, firmer than thoſe of the other ſorts, and about the ſize of cherries.

The fourth ſort is ſomewhat like the firſt, but the leaves are unequally winged, having ſome ſmaller lobes placed between the large ones; the lobes of this are ſhorter, broader, and not cut like thoſe of the firſt, but have ſome obtuſe indentures toward the baſe. Theſe have not that rank diſagreeable odour which the two firſt have; the fruit of it is not ſo large as thoſe of the firſt, but they are round, ſmooth, and are very late before they ripen here; ſo that unleſs the plants are raiſed early in the ſpring, they will not produce ripe fruit in England.

The fifth ſpecies is annual: this has a very branching herbaceous ſtalk, ſpreading out into many diviſions, as are not ſo hairy as the two firſt; the leaves are compoſed of a greater number of lobes, which are much ſhorter and more indented on their edges where they are a little waved. The flowers ſtand upon very long foot-ſtalks, which branch out, and ſupport a large number of flowers at the top: theſe have a longer ſtyle than thoſe of the other ſpecies, which is permanent, remaining on the top of the fruit; this is alſo late in ripening the fruit, ſo that unleſs the plants are raiſed early in the ſpring, the fruit will not ripen in England.

The ſixth ſpecies has very weak, trailing, ſmooth ſtalks, not more than a foot long, with ſmooth leaves, ſtanding by pairs oppoſite, which are regularly cut on the ſides almoſt to the mid-rib, in form of a winged leaf: theſe ſegments are alſo indented on their edges and at their points. The flowers, which are of a pale yellow, come out on the ſides of the ſtalks ſingly, and have large ſpreading empalements, which are deeply cut at the brim into many acute ſegments which ſpread open. The flowers are ſucceeded by ſmall, roundiſh berries, a little compreſſed at the top, of an herbaceous yellow colour when ripe.

The ſeventh ſpecies is the common Potatoe, which is too well known to need any deſcription here; for the manner of cultivating it, ſee the article POTATOE.

Culture of the Love-APPLE.

The firſt, ſecond, third, fourth, fifth, and ſixth ſpecies are propagated by ſowing their ſeeds on a moderate hot-bed in March, and when the plants are come up two inches high, they ſhould be tranſplanted into another moderate hot-bed, at about four inches diſtance from each other, obſerving to ſhade them until they have taken root; after which they muſt have a large ſhare of freſh air: for if they are too much drawn while young, they ſeldom do well afterwards.

In May theſe plants ſhould be tranſplanted either into pots or borders near walls, pales, or hedges, to which their branches may be faſtened to ſupport them from trailing on the ground, which they otherwiſe will do, and then the fruit will not ripen; ſo that where theſe plants are cultivated for the ſake of their fruit, they ſhould be planted to a warm aſpect, and the branches regularly faſtened as they extend, that the fruit may have the advantage of the ſun's warmth to forward them, otherwiſe it will be late in the ſeaſon before they are ripe, and they are unfit for uſe before; but when the plants are brought forward in the ſpring, and thus regularly trained to the ſouth ſun, the fruit will ripen by the latter end of July, and there will be a ſucceſſion of it till the froſts kill the plants.

LOVE-IN-A MIST, a ſpecies of Paſſion-flower. See the article PASSION-FLOWER.

LOVE-LIES-A-BLEEDING, a ſpecies of Amaranthus. See AMARANTHUS.

LUDVIGEA, a genus of plants which has no Engliſh name; there is only one ſpecies of it.

This plant is a native of South America. It riſes with an erect, branching ſtalk a foot high. The leaves are ſpear-ſhaped, and placed alternate. The flowers are placed ſingly at the foot-ſtalks of the leaves: they are compoſed of four ſmall yellow petals, and ſtand upon ſhort foot-ſtalks. Theſe are ſucceeded by roundiſh ſeed-veſſels, which incloſe a number of ſmall ſeeds.

Culture of the LUDVIGEA.

This plant is raiſed from ſeed, which muſt be ſown upon a hot-bed in the ſpring; and when the plants come up, they muſt be treated in every reſpect like the Amaranthus.

LUNARIA, a ſpecies of Draba, or Madwort. See the article MADWORT.

LUNGWORT, *Pulmonaria*, a genus of plants, ranged by Linnæus among the *pentandria monogynia*, of which there are five ſpecies. 1. Lungwort, with the lower leaves ſpear-ſhaped. 2. Lungwort, with the lower leaves oval, heart-ſhaped, and rough; called the Jeruſalem Cowſlip. 3. Lungwort, with ſhort cups, and ſpear-ſhaped, obtuſe leaves. 4. Lungwort, with ſhort cups, and the lower leaves ſomewhat heart-ſhaped. 5. Lungwort, with ſhort cups, oval leaves, and a branching, trailing ſtalk.

The firſt ſpecies grows naturally in Switzerland, Sweden, and Hungary; the ſecond in woody places in many parts of Europe. The third is a native of Virginia; the fourth of Siberia; and the fifth grows wild in many parts of England.

Culture of the LUNGWORT.

The firſt ſpecies is an annual plant, and is propagated by ſeed, which ſhould be ſown in autumn ſoon after they are ripe. When the plants come up they require no other care but to be thinned where they grow too cloſe, and to be kept clear from weeds; and if permitted to ſcatter their ſeeds, they will come up better than when ſown.

The ſecond, third, fourth, and fifth ſpecies have perennial roots, by the parting of which in ſpring or autumn, they may be propagated; they ſucceed beſt in light, ſandy ground, and a ſhady ſituation.

Cow's LUNGWORT, a ſpecies of Mullein. See the article MULLEIN.

LUPINE, *Lupinus*, a genus of plants, ranged by Linnæus among the *diadelphia decandria*, of which there are ſix ſpecies. 1. Lupine, with the cups placed in circles round the ſtalk, and increaſed by appendages, with the upper and lower lip of the flower both undivided; or the Giant Lupine. 2. Lupine, with alternate cups, having no appendages, the upper lip indented, and the under one intire. 3. Lupine, with alternate cups, having no appendages, the upper lip entire, but the under one cut into three parts, being the garden, or manured Lupine, with a white flower. 4. Lupine, with cups half whorled, having appendages, and with the upper lip bifid, and the under one almoſt trifid. 5. Lupine, with cups, having alternate appendages, with the upper lip divided into two, and the under one intire. 6. Lupine, with cups growing in whorls, and having appendages to them, with the upper lips cut into two parts, and the under lips into three; or the common yellow Lupine.

The Lupines are elegant plants, and eaſily cultivated; they are worthy a place in the beſt gardens, from the variety they are capable of giving by their ſingular form and colours: and none deſerves notice more than the firſt ſpecies, being the talleſt and moſt ſpecious of them all; the culture of this Lupine is a ſufficient direction for that of all the reſt.

Giant LUPINE. The root of this plant is compoſed of many thick, white fibres. The ſtalk is firm, upright, branched, of a pale green, and lightly hairy: it riſes to a yard in height, and is beſet with numerous leaves. Theſe have long foot-ſtalks, pale, and hairy at the main ſtem, and they are of the fingered kind, each compoſed of five, ſeven, or more parts, which are joined to the foot-ſtalks all in one place, and are oblong, narrow, hairy, and of a faint green. The flowers are very elegant, and are diſpoſed to great advantage; they are placed at diſtances upon the ſtalk in circular tufts, and open in ſucceſſion. The colour is changeable, and the ſame ſeeds will produce red, blue, and white. Each has its cup formed of one leaf, ſplit into two parts, and hung with a ſmall appendage. The flower is papilionaceous, and regular in that form. The vexillum is rounded and compreſſed, and has the edges turned back. The alæ are oval, and nearly equal to the vexillum in length; they converge below, and are not fixed to the carina. The carina is ſplit at the baſe, and falcated upwards, and is narrower than the alæ, and undivided. The filaments are ten; they are formed into two bodies in the lower part, and looſe in the upper: they have a bend upwards, and five of them are crowned with oblong, and the other five with roundiſh buttons. The fruit is a large compreſſed pod, tough, pointed, and containing in one cell numerous large ſeeds.

Culture of the Giant Lupine.

The plant is a native of the warmer parts of Europe, but it acquires its great ſtature and large flowers by culture. It is an annual, and is raiſed from ſeeds. In the beginning of March let a warm, dry, and well-ſheltered border be dug up, and plant ſome good ſeeds of this Lupine in rows a foot aſunder, and at the diſtance of four inches from one another in the rows. When the plants come up let them be weeded and watered; and when it is ſeen which are the ſtrongeſt and fineſt, let two out of three be taken up, leaving theſe ſtout plants: they will thus ſtand at a foot aſunder, and this will be a proper diſtance for their flowering. The earth muſt be broke about them from time to time, and they muſt have frequent waterings.

This will ſhew all the natural beauty of the plant; and the flowers will be elegant, whether in the bud, in their full blown perfection, or in the firſt approaches to decay: for the colour often changes in that time, and the different flowers upon the ſame plant afford a great deal of variety.

Beſide theſe plants raiſed for the ſummer flowering, it will be proper to bring up a particular ſet for ſeed, as they are very ſubject to miſcarry, owing to the pods not ripening well upon the original plant. This is the caſe with moſt of the Giant Lupines ſown in ſpring: the ſeaſon is too cold for their ripening the ſeeds by that time they have formed themſelves in the pod. The method to have good ſeed is to ſow the plants for that uſe in autumn: a very warm ſpot muſt be choſen for this purpoſe, perfectly ſheltered from the cold quarters, and the ſoil muſt be dry. In this place, in Auguſt, ſow ſome of theſe Lupines, and if there do not fall any ſhowers, encourage the ſhooting of the plants by watering. They will get ſo much ſtrength before winter, as to bear all the ſeverity they will be expoſed to in ſuch a ſpot, and flower early the next year: they will ripen their ſeeds during the heat of ſummer; and theſe will never fail to produce perfect and fine plants.

LYCHNIS, *Campion*, a genus of plants, ranged by Linnæus among the *decandria monogynia*, of which he enumerates ſeven ſpecies. 1. Lychnis, with flowers gathered into a pyramid, commonly called Scarlet Lychnis. 2. Lychnis, with quadrifid petals, and a roundiſh fruit, commonly called Ragged Robin. 3. Lychnis, with intire petals, commonly called the Single Catch-fly. 4. Lychnis, with bifid petals, and flowers growing in a corymbus. 5. Lychnis, with bifid petals, a ſtalk divided by pairs, and leaves which are ſomewhat hairy. 6. Lychnis, with male and female flowers, on different plants, frequently called Bachelors Buttons. 7. Lychnis, with a ſwoln cup, the petals of the flower ſhorter than the cup, and ſtalks with one flower.

The firſt ſpecies here mentioned is commonly known by the title of Scarlet Lychnis, of which there is a variety with double flowers, which is moſt eſteemed, as it laſts longer in beauty than the ſingle one, ſo that the latter is not much cultivated, though the flowers of this are very beautiful; and as the plants are ſo eaſily propagated by ſeeds, they may ſoon be had in greater plenty than thoſe with double flower which do not produce ſeeds. Of the ſingle ſort there are three varieties, the deep ſcarlet, the fleſh colour, and the white, but the firſt is the moſt beautiful.

The ſort with double flowers is a valuable plant: the flowers are very double, and of a beautiful ſcarlet colour. This has a perennial root, from which riſe three or four ſtalks, according to the ſtrength of the roots, which in rich moiſt land grow upwards of four feet high. The ſtalks are ſtrong, erect, and hairy, with ſpear-ſhaped leaves. The flowers are produced in cloſe cluſters, ſitting upon the top of the ſtalk; the flowers are double, of a bright ſcarlet colour: they appear the latter end of June, and in moderate ſeaſons continue near a month in beauty. This was originally produced from the ſeeds of the ſingle ſort.

The ſecond ſpecies grows very common by the ſides of rivers in moſt parts of England: it is never admitted into gardens, but there is a variety of it with double flowers, which is very beautiful; theſe flowers produce no ſeeds, ſo are propagated by ſlips: it is commonly known by the title of Ragged Robin.

The third ſpecies is commonly called Red German Catch-fly. This has been found growing naturally upon the rocks in Scotland, and in ſome places in Wales: it was formerly cultivated in flower-gardens for ornaments, but ſince this ſort with double flowers has been produced, the ſingle has been almoſt baniſhed out of the gardens. This has long, narrow leaves, which come out from the root without order, ſitting cloſe to the ground: between theſe come up ſtaight ſingle ſtalks, which in good ground riſes a foot and a half high; at each joint of the ſtalk come out two leaves oppoſite, of the ſame form as the lower, but decreaſe in their ſize upwards; under each pair of leaves for an inch in length, there ſweats out of the ſtalk a glutinous liquor, which is almoſt as clammy as birdlime; ſo that the flies which happen to light upon theſe places, are faſtened to the ſtalk, where they die, from whence it had the title of Catch-fly. The ſtalk is terminated by a cluſter of purple flowers, and from the two upper joints comes out, on each ſide the ſtalk, a cluſter of the ſame flowers, ſo that the whole form a ſort of looſe ſpikes. Theſe appear in the beginning of May, and are ſucceeded by roundiſh ſeed-veſſels, which are full of ſmall angular ſeeds, ripening in July.

The fourth ſpecies grows naturally on the Alps in Lapland, and in other cold parts of Europe. The ſtalk of this is erect, half a foot high, with narrow, ſpear-ſhaped leaves. The flowers are produced in a corymbus on the top of the ſtalk, ſitting cloſe together; they are of a purple colour, and the petals are cut in the middle.

The fifth ſpecies grows naturally in Siberia. This has a perennial root, from which ariſe many narrow leaves, ſitting cloſe to the ground. The ſtalks riſe a foot high, dividing into branches by pairs. The flowers grow out from the diviſion of the branches, as alſo at the top of the ſtalk. They are compoſed of five white petals, which are divided in the middle, and are ſucceeded by roundiſh capſules, filled with ſmall angular ſeeds.

The ſixth ſpecies is commonly called Batchelors Button. See the article Batchelors Button.

The ſeventh ſpecies is a native of Portugal. It has a perennial root, from which ariſe many oblong, narrow leaves; from theſe come out upright ſtalks about nine inches high, which divide upwards by pairs: and from the middle of each diviſion comes out a ſlender foot-ſtalk two inches long, ſuſtaining one double purple flower at the top, whoſe petals are very much jagged at their points; the empalements of the flowers are marked with deep purple ſtripes. From the ſides of the ſtalks there are alſo foot-ſtalks coming out at the wings, which for the moſt part ſuſtain but one flower; theſe flowers being very double, are never ſucceeded by ſeeds.

Culture of the LYCHNIS.

The firſt ſpecies is eaſily propagated by ſeeds, which ſhould be ſown on a border expoſed to the eaſt, in the middle of March. The plants will appear in April, and by the end of June they will be fit to remove, when there ſhould be a bed of common earth prepared to receive them, into which they ſhould be planted at about four inches apart, obſerving to water and ſhade them till they have taken root; after which they will require no other care but to keep them clean from weeds till the following autumn, when they ſhould be tranſplanted into the borders of the pleaſure-garden, where they are to continue. The ſummer following theſe plants will flower and produce ripe ſeed, but the roots will abide ſeveral years, and continue to flower.

The beſt method of propagating the double flowers of this ſort is to cut off the ſtalks in June before the flowers appear, which may be cut into ſmall lengths, each of which ſhould have three joints; theſe cuttings ſhould be planted on an eaſt border of ſoft loamy earth, putting two of the joints into the ground, leaving one eye juſt level with the ſurface. Theſe muſt be watered, and then covered cloſe with bell or hand-glaſſes, ſo as to exclude the outward air, and ſhaded with mats when the ſun ſhines hot upon them. The cuttings ſo managed will put out roots in ſix weeks or two months, when they muſt be expoſed to the open air. Theſe will make good plants by autumn, when they may be tranſplanted into the borders of the pleaſure-garden, where they will flower the following ſummer.

It has already been obſerved, that the ſecond ſpecies is propagated by ſlips.

The third ſpecies is propagated by parting and ſlipping of the roots; the beſt time for this is in autumn, at which time every ſlip will grow. If this is performed in September, the ſlips will have taken good root before the froſts, and will flower well the following ſummer; but if they are expected to flower ſtrong, the roots muſt not be divided into ſmall ſlips.

Theſe ſhould be planted on a border expoſed to the morning ſun, and ſhaded when the ſun is warm, till they have taken root. If the ſlips are planted in the beginning of September, they will be rooted ſtrong enough to plant in the border of the flower-garden, by the middle or latter end of October. The roots of this ſort will multiply ſo faſt as to make it neceſſary to tranſplant and part them every year; for if they remain longer, they are very apt to rot.

The fourth and fifth ſpecies are propagated by ſeeds, and alſo by parting of the roots; they muſt have a moiſt ſoil and a ſhady ſituation, otherwiſe the plants will not thrive. The time for tranſplanting the plants, and parting the roots, is the ſame as for the third.

The ſeventh ſpecies is propagated by ſlips, but coming from a warm country, it is impatient of much cold, and requires a particular treatment, for it does not thrive well in pots, nor will it live through the winter in open borders; the ſituation in which it thrives beſt is cloſe to a ſouth wall, in dry undunged earth; for in rich or moiſt ground the roots will rot, as they alſo do when they are watered.

M.

MACAW-TREE, a ſpecies of the Palma or Palm-Tree.

It is a native of America, where it riſes to the height of thirty or forty feet. The ſtem is generally larger toward the top than at the bottom. The leaves are winged; the ſmall leaves, or lobes, are long and broad. The ſtalk and leaves are ſtrongly armed with black ſpines of various ſizes in every part. The flowers proceed from the trunk, between the leaves, and are male and female on the ſame tree. The fruit is about the ſize of a middling apple, and is incloſed in a hard ſhell.

Culture of the MACAW-TREE.

It is propagated by ſeeds in the ſame manner as the Date-tree, with this difference only, that it requires to be always kept in the bark-bed of the ſtove.

MAD APPLE. See *Mad* APPLE.

MADWORT, *Alyſſum*, a genus of plants, ranged by Linnæus among the *tetradynamia ſiliculoſa*, and of which he diſtinguiſhes eleven ſpecies: 1. Madwort, with old branches, and naked ſpines. 2. Madwort, with ſhrubby, diffuſed branches, and prickly punctuated leaves. 3. Madwort, with ſpear-ſhaped, linear, acute, entire leaves, and a trailing, perennial ſtalk. 4. Madwort, with ſhrubby ſtalks, flowers growing in panicles, and ſpear-ſhaped, waved, entire leaves. 5. Madwort, with an erect ſtalk, hoary, ſpear-ſhaped, entire leaves, and flowers diſpoſed in a corymbus. 6. Madwort, with herbaceous, diffuſed ſtalks, narrow, hairy leaves, and compreſſed pods. 7. Madwort, with an erect, herbaceous ſtalk, ſeſſile, oval, compreſſed, plain pods, and pointed petals. 8. Madwort, with an herbaceous ſtalk, ſpear-ſhaped, indented leaves, and inflated pods. 9. Madwort, with an herbaceous, erect ſtalk, hoary, ſpear-ſhaped, entire leaves, and inflated pods. 10. Madwort, with linear, indented leaves, and inflated, angular, acute pods. 11. Madwort, with hoary, indented leaves, and four double-forked ſtamina.

All theſe ſpecies are natives of the ſouth of Europe. The four firſt ſpecies are ſhrubby plants, and the others are annual and biennial.

Culture of this MADWORT.

The firſt, ſecond, third, and fourth ſpecies are propagated by ſowing the ſeeds in March, in a light, ſandy ſoil; or by planting cuttings in April or May, which ſhould be ſhaded in the heat of the day till they have taken root, and gently watered.

The remaining ſorts are propagated by ſeeds, which ſhould be ſown ſoon after they are ripe, in a dry ſoil, or upon lime-rubbiſh; and if their ſeeds are permitted to ſcatter, a new ſucceſſion of plants will ariſe without any farther care.

MADWORT, *Draba*, a genus of plants, ranged by Linnæus among the *tetradynamia ſiliculoſa*, of which there are ſix ſpecies. 1. Madwort, with a ſingle, naked ſtalk, and very entire, ſpear-ſhaped leaves. 2. Madwort, with naked ſtalks, and cut leaves. 3. Madwort, with a naked ſtalk, and pinnated, trifoliate leaves. 4. Madwort, with a branching ſtalk, and heart-ſhaped, indented leaves embracing the ſtalks. 5. Madwort, with a branching ſtalk, and oval, indented leaves growing cloſe to the branches. 6. Madwort, with many hoary leaves on the ſtalks, and oblique pods, ſometimes called Lunaria.

Theſe plants are natives of many parts of Europe, and ſome of them grow naturally in England.

Culture of this MADWORT.

The firſt and third ſpecies are eaſily propagated by parting of the heads in autumn; they ſhould have a moiſt ſoil, and a ſhady ſituation, and require no other care but that of being kept free from weeds.

The ſecond and fourth ſpecies are never admitted into gardens.

The fifth and ſixth ſpecies are propagated by ſeeds, which muſt be ſown in autumn, upon a ſhady border, and the plants will come up without any farther trouble.

MAHOGANY-TREE, according to ſome authors a ſpecies of Cedar, but by others conſidered as a diſtinct genus.

It is a native of the warmeſt parts of America, where it grows to a great height. The leaves are winged like thoſe of the Aſh, but ſhorter and broader at their baſe, where they adhere to the mid-rib by very ſhort foot-ſtalks. The flowers are ſucceeded by a fruit which grows erect, upon long foot-ſtalks.

Culture of the MAHOGANY-TREE.

It is propagated by ſeeds, which are beſt when procured from the Bahama iſlands; theſe ſhould be ſown in ſmall pots filled with light ſandy earth, and plunged into a hot-bed of tanners-bark, giving them a gentle watering once a week. If the ſeeds are good the plants will appear in a month or five weeks; when they are about two inches high, a number of ſmall pots ſhould be filled with light earth, and plunged into the tan-bed for two days, that the earth may be warmed: then the young plants ſhould be ſhaken out of the pots they are in, and carefully ſeparated, ſo as not to injure their roots, and each planted in one of the pots prepared for them, obſerving to ſhade them till they have taken freſh root: after which they muſt be treated in the ſame manner as other tender plants from hot climates.

MAIDEN-HAIR, *Adiantum*, a genus of plants, ranged by Linnæus among the *cryptogamia filices*, of which he enumerates fifteen ſpecies, but one of theſe only is cultivated in gardens; viz: Maiden Hair, with decompounded leaves, the lobes alternate, and the wings wedge-ſhaped, lobated, and ſtanding on foot-ſtalks; or the true Maiden Hair.

This plant is a native of the ſouthern parts of Europe, and uſually grows out of the joints of walls, and fiſſures of rocks.

Culture of the MAIDEN HAIR.

It is propagated by planting it in pots filled with gravel and lime-rubbiſh. The pots muſt be ſheltered under a frame in winter, otherwiſe the plants are often killed by the froſt.

MALABAR NUT, a ſpecies of Juſticia. See the article JUSTICIA.

MALLOW, *Malva*, a genus of plants, ranged by Linnæus among the *monadelphia polyandria*, and of which he diſtinguiſhes fifteen ſpecies, but moſt of them being natives of this country, are ſeldom admitted into gardens: it is therefore unneceſſary to mention them, but the two following deſerve a place in every collection. 1. Mallow, with ſmooth, jagged, and ſomewhat heart-faſhioned leaves. 2. Mallow, with heart-ſhaped, crenated leaves, and flowers growing ſingly from the ſides of the ſtalks, and in ſpikes at the top.

The firſt ſpecies is a ſhrub of very handſome growth, with large and graceful leaves, and very ſhewy flowers.

The root is woody, ſpreading, and full of fibres. The ſtem is firm, thick, brown, and a little hairy. The branches are numerous, and the leaves ſtand very cloſe on long, brown foot-ſtalks; they are broad, waved, indented at the edges, and of a greyiſh green. The flowers riſe from the boſoms of the leaves, and grace not only the top of the plant, but in a manner the whole; they are large, and of an elegant bright red, with purple bottoms. The flower is compoſed of five petals, which are united at their baſes: it ſtands in a double cup, the outer one conſiſting of three leaves, and the inner of one, divided at the end into five ſegments. In its centre ſtand numerous filaments, free and looſe at their tops, but at the bottom united into a cylinder. The fruit which ſucceeds the flower is compoſed of numerous cells, each containing one ſeed.

The ſecond ſpecies is a native of the Weſt-Indies. The ſtalk is ſmooth. The leaves are heart-ſhaped, and ſtand upon foot-ſtalks. The ſides and tops of the branches are ornamented with flowers of a delicate pale blue. Theſe appear in June, and the ſeeds ripen in autumn.

Culture of the MALLOW.

Theſe ſpecies are both propagated by ſeeds, which early in ſpring ſhould be ſown on a hot-bed; the plants will come up freely, when they muſt be tranſplanted on a ſecond hot-bed.

When they have acquired ſome ſtrength, they muſt be removed into pots of a middling ſize, filled with the following compoſt:

A barrow of earth from a common, with a buſhel of pond-mud, and a peck of ſand: theſe ſhould be mixed in November, and laid in a heap till wanted.

When the plants are ſettled in the pots by a gentle watering, plunge them into a bark-bed, burying the pots half way in the tan; let them be ſhaded at firſt, and afterwards by degrees hardened a little to the air. When the glaſſes have been removed once or twice in the middle of the day, let the pots be taken out of the tan, and placed among the exotics, which at that ſeaſon enjoy the free air: there let them ſtand the ſummer, and in autumn be removed with the reſt into the ſhelter of the green-houſe. They will flower the ſecond, if not the firſt year.

Baſtard MALLOW, *Malope*, a genus of plants, ranged by Linnæus among the *monadelphia polyandria*, and of which there is but one ſpecies.

The whole plant has greatly the appearance of the common Mallow, but differs from it in having the cells collected into a button. The branches ſpread, and lie flat upon the ground, extending themſelves a foot each way.

Culture of the Baſtard MALLOW.

It is propagated by ſeeds, which ſhould be ſown in Auguſt, upon a warm border, where the plants will come up before winter, when they muſt be tranſplanted into ſmall pots, and ſheltered under a hot-bed frame. In ſummer they ſhould be placed with other hardy exotics in a ſheltered ſituation, where in warm ſeaſons they will produce ſeeds.

Jews MALLOW, *Corchorus*, a genus of plants, of which there are five ſpecies. 1. Common Jews Mallow. 2. Jews Mallow, with heart-ſhaped, ſawed leaves, and oblong, ſwelling, furrowed capſules. 3. Jews Mallow, with roundiſh, depreſſed capſules, which are rough. 4. Jews Mallow, with a yellow flower, and fruit like a clove. 5. American Jews Mallow.

The firſt ſpecies is a native of both Indies. It is an annual plant, which riſes about two feet high, dividing into ſeveral branches. The leaves are of different ſizes and forms: ſome are ſpear-ſhaped, others oval, and ſome almoſt heart-ſhaped; they are of a deep green, and ſlightly indented on their edges. The flowers are compoſed of five ſmall yellow petals, and are ſucceeded by capſules, filled with angular, greeniſh ſeeds.

The ſecond ſpecies is a native of the Weſt-Indies. It riſes with a ſtrong, herbaceous ſtalk, two feet high, dividing upwards into two or three branches. The leaves are heart-ſhaped, ſawed on their edges, and ſtand upon long foot-ſtalks. The flowers reſemble thoſe of the former ſpecies, and are ſucceeded by ſeeds in the ſame manner.

The third ſpecies has a ſlender, herbaceous ſtalk, about three feet high, which ſends out ſeveral weak branches: at each joint is placed one leaf, of an oblong heart-ſhape, ending in a long acute point, ſawed on their edges, and ſtanding upon ſhort foot-ſtalks. The flowers grow ſingly on the ſides of the branches; they are ſmall, and ſucceeded by ſhort, roundiſh ſeed-veſſels, filled with angular ſeeds. It is a native of both Indies.

The fourth ſpecies, which is alſo a native of both Indies, riſes about two feet high, and divides into many ſmall branches. The leaves are heart-ſhaped, and crenated on their edges. The flowers are very ſmall, of a pale yellow, and are ſucceeded by ſwelling, rough, four-cornered ſeed-veſſels, about an inch long, flatted at the top, where there are four horns, which are reflexed, and have ſome reſemblance in ſhape to the clove.

The fifth ſpecies is a native of Carthagena. It riſes about three feet high, ſending out ſeveral weak ſide-branches. The leaves are long, narrow, and ſawed on their edges. The flowers are ſmall, and of a pale yellow; they are ſucceeded by narrow compreſſed pods, filled with ſmall angular ſeeds.

Culture of the Jews MALLOW.

All theſe plants are too tender to thrive in the open air of our climate; therefore their ſeeds muſt be ſown on a hot-bed in the ſpring, and when the plants are fit to remove, they ſhould be tranſplanted on a freſh hot-bed, and when they are well rooted in it, they muſt have free air admitted to them every day, to prevent their being drawn up weak.

When they have obtained ſome ſtrength they ſhould be each tranſplanted into a ſeparate pot, and plunged into a hot-bed, where they muſt be ſhaded till they have taken root. In June they ſhould be gradually inured to the open air, when part of them may be ſhaken out of the pots, and planted in a warm border, where, if the ſeaſon proves hot, they will perfect their ſeeds; but as theſe ſometimes fail, it will be proper to preſerve one or two plants in a glaſs-caſe, where they may be ſheltered from bad weather, and from theſe good ſeeds may always be obtained.

Indian MALLOW, *Sida*, a genus of plants, ranged by Linnæus among the *monadelphia decandria:* of which there are ten ſpecies. 1. Indian Mallow, with heart-ſhaped, oval, ſawed leaves, briſtly ſtipulæ, and ſpiny ſtems. 2. Indian Mallow, with ſpear-ſhaped, rhomboidal, ſawed leaves. 3. Indian Mallow, with orbicular, plaited, ſawed leaves. 4. Indian Mallow, with heart-ſhaped, angular, ſawed, hairy leaves. 5. Indian Mallow, with ſpear-ſhaped, heart-ſhaped, intire leaves. 6. Indian Mallow, with roundiſh, heart-ſhaped, pointed, intire leaves. 7. Indian Mallow, with roundiſh, heart-ſhaped, pointed, crenated leaves. 8. Indian Mallow, with heart-ſhaped, roundiſh, crenated, woolly leaves, and inflated capſules, with many cells. 9. Indian Mallow, with angular leaves, the inferior ones heart-ſhaped, and the higher pandura-ſhaped. 10. Indian Mallow, with heads conſiſting of three leaves growing upon foot-ſtalks, and ſeven flowers.

Theſe plants are natives of the Indies. They are all annual, except the tenth ſpecies, which is perennial.

Culture of this Indian MALLOW.

All theſe ſpecies are propagated by ſeeds, which ſhould be ſown the beginning of April upon a moderate hot-bed. When the plants are fit to be removed let them be tranſplanted on a ſecond hot-bed, and placed at the diſtance of four inches every way; they ſhould be ſhaded from the ſun till they have taken new root, and muſt have a large ſhare of air admitted to them in mild weather. By degrees they muſt be inured to the open air, and about the beginning of June they are to be taken up with balls of earth to their roots, and planted in a warm ſheltered part of the garden, at about the diſtance of three feet from each other, obſerving to ſhade and water them till they have taken new root, after which they will only require the common care of being kept clean from weeds.

Indian MALLOW, *Urena*, a genus of plants, ranged by Linnæus among the *monadelphia polyandria*, and of which there are three ſpecies. 1. Indian Mallow, with angular leaves. 2. Indian Mallow, with ſinuated, hairy, many-pointed leaves. 3. Indian Mallow, with ſpear-ſhaped, heart-ſhaped, undivided, ſawed leaves, and a trailing ſtalk.

The firſt ſpecies of this plant is a native of China. The ſecond ſort grows naturally in India: and the third on the mountains of China.

Culture of this Indian MALLOW.

All theſe ſpecies are propagated by ſeeds, which ſhould be ſown on a hot-bed early in the ſpring. When the plants are fit to remove, let them be tranſplanted into pots, and plunged into a freſh hot-bed, to bring them forward: after which let them be placed in the ſtove, or under a deep frame, till they have ripened their ſeeds.

Marſh MALLOW, *Althæa*, a genus of plants ranged by Linnæus among the *monadelphia polyandria*, of which there are three ſpecies. 1. Marſh-mallow with ſingle woolly leaves, or the common Marſh-mallow. 2. Marſh-mallow with the lower leaves palmated, the upper ones digitated, and ſhrubby ſtalks. 3. Marſh-mallow with trifid, hairy, prickly leaves.

The firſt ſpecies grows naturally in moiſt places in England, Holland, France, and Siberia. It has a perennial root, and an annual ſtalk. The ſecond ſpecies is a native of Hungary, and Italy. The third ſpecies grows naturally in France, Italy, and Spain.

Culture of the Marſh-MALLOW.

The firſt ſpecies is propagated either by ſeeds or parting of the roots: when by ſeeds they ſhould be ſown in ſpring: but the beſt time for parting the roots is in autumn when the ſtalks decay. It will thrive in any ſoil or ſituation, but grows larger in moiſt places. The plants ſhould not ſtand nearer than two feet to each other. The ſecond ſpecies is propagated by ſeed. The ſeed ſhould be ſown in the ſpring, in the place where the plants are to remain. If that is not done, let them be tranſplanted young; they muſt have a ſheltered ſituation and a dry ſoil. The third ſpecies is propagated by ſeeds ſown in April, in the place where the plants are deſigned to remain.

Roſe-MALLOW, a ſpecies of the Holyhock. See the article HOLYHOCK.

Syrian-MALLOW, a ſpecies of the Hibiſcus. See HIBISCUS.

Tree-MALLOW, a ſpecies of Lavatera. See the article LAVATERA.

Yellow-MALLOW, *Abutilon*, a genus of plants, of which there are eight ſpecies. 1. The common Yellow-mallow. 2. The Indian Yellow-mallow. 3. American Yellow-mallow with oblong heart-ſhaped leaves, and the foot-ſtalks of the flowers longer than thoſe of the leaves. 4. Yellow-mallow with oval, heart ſhaped, rough leaves, and flowers diſpoſed in a looſe ſpike at the ends of the branches. 5. Yellow-mallow, with downy, roundiſh, heart-ſhaped leaves, having foot-ſtalks, and ſwollen covers to the fruit: which are crenated and turn backwards. 6. Yellow-mallow, with heart-ſhaped pointed leaves, which are notched on their edges, ſitting cloſe to the ſtalks, and a downy ſwollen cover to the fruit, having a jointed foot-ſtalk. 7. Yellow-mallow, with ſmooth halbert-pointed leaves and flowers. 8. Indian Mallow with ſharp-pointed lobed leaves, woolly on their under ſide, flowers terminating the branches, and a downy ſhrubby ſtalk.

The firſt, fourth, and eighth ſpecies, are moſt worthy deſcription.

The firſt ſort is a native of many parts of North America. It is an annual plant, which in good ground will riſe four or five feet high, ſending out many branches: the leaves are ſoft to the touch, the flowers ſmall, of a yellow colour, ſo make no great appearance.

The fourth ſort grows naturally on moiſt land in the Weſt Indies, where it riſes with a ſhrubby ſtalk, five or ſix feet high, ſending out branches on every ſide. The leaves are rough and heart-ſhaped. The flowers are diſpoſed in looſe ſpikes at the ends of the branches, they are yellow, and like thoſe of the mallow.

The eighth ſort is a native of the Bahama Iſlands. It riſes with a ſhrubby ſtalk to the height of ſeven or eight feet: the ſtalks are covered with a whited down, having four or five lobes ending in ſharp points; which are downy on their under ſide; the flowers are purple, and grow in looſe cluſters at the ends of the branches.

All the other ſpecies are annual plants, which grow naturally in ſeveral parts of the Weſt Indies.

Culture of the Yellow-MALLOW.

The firſt ſpecies is propagated by ſeeds, which muſt be ſown in the ſpring, on a border where the plants are to remain. They will require no other care, than to be kept clean from weeds, and thinned where they grow too cloſe.

The ſecond, third, fifth, ſixth, and ſeventh ſpecies are propagated by ſeeds, which ſhould be ſown in ſpring on a moderate hot-bed, and when the plants are fit to remove, they ſhould be tranſplanted on another hot-bed, to bring them forward, but as the weather becomes warm, they muſt by degrees be inured to the open air; and toward the middle of May, if the ſeaſon proves favourable, they muſt be taken up with balls of earth to their roots, and planted in the open borders, where they muſt be ſhaded and watered till they have taken new root; after which they will only require to be kept clear from weeds. In June they will begin to flower, and there will be a ſucceſſion of flowers, till the cold in autumn puts a ſtop to them. The ſeeds ſhould be gathered as they ripen, otherwiſe they will ſcatter.

The ſeeds of the fourth ſpecies muſt be ſown on a hot-bed, and when the plants come up, they muſt be removed each into a ſeparate pot, and placed in a moderate warmth, where they muſt always continue, otherwiſe they will not thrive in this country. The plants will continue three or four years, and produce flowers and fruit. The eighth ſpecies is propagated by ſeeds, which muſt be ſown on a moderate hot-bed. When the plants are fit to remove, they muſt be put into pots, and gradually inured to the open air, to which they muſt be expoſed in ſummer; but in winter they are to be placed in a good green-houſe to ſecure them from froſt.

MAMMEE-TREE, *Mammea*, a genus of plants, of which there is but one ſpecies.

This tree is a native of the Weſt-Indies, where it grows to the height of ſixty, and ſometimes ſeventy feet. The leaves are large, ſtiff, and continue green all the year. The fruit is as large as a man's fiſt: when ripe it is of a yellowiſh green colour, and is very agreeable to the taſte.

Culture of the MAMMEE-TREE.

It is propagated by planting the ſtones, which ſhould be obtained as freſh as poſſible from the Weſt-Indies: theſe ſhould be put into pots, and plunged into a hot-bed of tanners-bark. In about two months the plants will appear above ground: after which, if the weather is warm, the glaſſes of the hot-bed ſhould be raiſed to let in the freſh air. In about three months more the roots of the plants will have filled the pots, when they ſhould be carefully taken out, and the outer ſhell of the nut taken off with all poſſible care not to injure the plants: then they muſt be new potted, and plunged again into the bark-bed, where they muſt be watered and ſhaded till they have taken freſh root: after which they ſhould have air and water in proportion to the warmth of the ſeaſon.

In this bed they may remain till Michaelmas, when they muſt be removed into the bark-ſtove, where they muſt be conſtantly kept.

MANDRAKE, *Mandragora*, a genus of plants, ranged by Linnæus among the *pentandria monogynia*: of which there is only one ſpecies.

The root of this plant is long and thick, ſimple, or divided, and hung with many fibres; from this riſe numerous and vaſt leaves, long, moderately broad, waved at the edges, pointed, and of a duſky green: among theſe ſpring up a number of little foot-ſtalks, ſlender, reddiſh, three inches high, each at its ſummit bearing one large flower. This is of a whitiſh hue, more or leſs tinged with a deep purple, ſucceeded by a round or oblong fruit. The cup in which the flower is placed is hollowed as a bell, formed of one piece cut into five parts, and ribbed. One petal forms the body of the flower, but is deeply cut into five ſegments. The fruit is divided into two cells, and has, in a fleſhy receptacle convex on each ſide, a number of kidney-ſhaped ſeeds.

The whole plant has an unpleaſing ſmell, and a gloomy aſpect. The root, concerning which ſo many ſtories have been told, and however ſtrange believed, differs in nothing materially from other long roots. Naturally it is ſingle, and reſembles nothing more than a carrot, except in colour. Sometimes it is divided, or forked, as we ſee radiſhes, and in this ſtate it has been ſuppoſed to repreſent a human body and legs.

Culture of the MANDRAKE.

The plant is hardy, and almoſt univerſal. It grows wild in the warmeſt parts of Europe, Greece, and Egypt. In places where it is a native, it thrives beſt in a light, deep ſoil, and open expoſure: and in ſuch places, and ſuch ſoil we muſt raiſe it from ſeed, which it ripens freely with us: but this muſt be done in the garden where the plants are to remain: for one great article in the perfecting it, is, never to remove it.

Let a ſmall pot, in ſome open part of the garden be ſelected, and the mould being dug out four feet deep, let the place be filled with any one of the light compoſts, ſcreening it firſt, that there may remain no lumps or ſtones in it to ſplit the root: for though the imaginary reſemblance of the human form depends upon the dividing of the root, the perfect flouriſhing of the plant will be owing to its running down to a great depth ſingle and uninterrupted. On ſuch a bed of earth let ſome ſeeds of the Mandrake, ſaved from a ſtrong plant, and dryed carefully, be ſown in the beginning of September: let the bed be weeded and watered occaſionally; and when the plants are ſo far advanced that it can be ſeen which are the ſtrongeſt and moſt promiſing, let the weak ones be taken up, and theſe left at two feet and a half diſtance: they will after this require only the common care of weeding and watering, and they will flower annually, and produce ripe fruit in full perfection. The depth to which the root ſtrikes, prevents all neceſſity of renewing the ſuperficial part of the ſoil.

MAPLE-TREE, *Acer*, a genus of plants, ranged by Linnæus among the *polygamia monoecia*, and of which there are nine ſpecies. 1. Maple-tree, with heart-ſhaped, undivided, ſawed leaves, obſolete lobes, and flowers growing in bunches. 2. Maple-tree, with leaves divided into five lobes, unequally ſawed, and flowers growing in bunches. 3. Maple-tree, with leaves divided into five indented lobes, of a ſcarlet colour underneath, and with ſingle foot-ſtalks to the flowers, collected together. 4. Maple-tree, with leaves divided into five palmated ſegments, acutely indented; or the Sugar Maple. 5. Maple-tree, with ſmooth, ſharp-pointed leaves, acutely indented, and flowers growing in a corymbus. 6. Maple-tree, with leaves divided into three lobes, ſharply ſawed, and flowers growing in bunches. 7. Maple-tree, with lobated, obtuſe, emarginated leaves; or the common Maple. 8. Maple-tree, with leaves divided into three entire lobes. 9. Maple-tree, with compound leaves, and flowers growing in bunches.

The firſt ſpecies grows naturally in Tartary. The ſecond is a native of the mountains of Switzerland and Auſtria. The third of Virginia and Penſylvania. The fourth and ſixth of Penſylvania. The fifth grows naturally in the northern: and the ſeventh in the ſouthern parts of Europe. The eighth ſort is a native of Montpelier and Crete: and the ninth of Virginia.

Culture of the MAPLE-TREE.

The ſeveral ſpecies may be readily propagated by ſeeds, which ſhould be ſown ſoon after they are ripe upon a bed of light earth. When the plants come up, let them be kept clean from weeds: and the autumn following they muſt be tranſplanted into a nurſery, at the diſtance of two feet, in rows three feet aſunder; and here they may remain till they are large enough to be tranſplanted into the places where they are to ſtand.

The North American kinds may alſo be propagated by laying down the young branches early in the ſpring, giving them a little ſlit at a joint, by which means they will take ſufficient root in a twelvemonth to be tranſplanted out.

MARCH, the third month in the year.

In the *Flower-garden.* You muſt carefully deſtroy the weeds, which about the beginning of this month riſe on the borders, and hurt the roots of flowering plants; and when the largeſt weeds are taken off, the ſurface muſt be broke, and the ſmall ones deſtroyed with a trowel. After this let the borders be laid ſmooth, and a quarter of an inch of fine freſh mould ſifted over it once in three days; if the ſeaſon be dry, give a gentle watering in the morning, two hours after ſun-riſe.

Such roots as are not in good condition, ſhould now be removed and replaced by others. Plant, if required, biennial and perennial flowers about the beginning of this month; take off the common hoops from the beds of Ranunculus and Anemonies, and fix in their place ſome that are much higher, and let the covering they are intended to ſupport never be uſed but when it is wanted, not in all nights, but only ſuch as are froſty: and if the days be ſevere, let it be kept on, except two hours at noon; dig up little patches in ſeveral borders for tufts of hardy annual flowers: rake the ſurface even, ſcatter on the ſeeds, and ſift a light covering of mould over them; let the graſs-walks be cut at the edges, and put in order, and all the borders muſt be kept clean. About the middle of this month look to the beds of valuable flowers.

The tender annuals ſown upon hot-beds will be fit to tranſplant, the ſecond hot-beds ſhould be ready for them. About the end of this month ſow a ſecond parcel of thoſe annuals, which are to be raiſed where they are to remain.

In the *Seminary*. Dig a piece of ground for ſowing the berries of ever-greens: ſow American trees which bear the open air, and dig up the earth between the rows of young trees; look over thoſe trained for conſpicuous parts of the garden, and for other purpoſes, where they will be in ſight; trim up thoſe intended for heads, and tie carefully the young ſhoots of ſuch as you would have riſe ſtraight to ſtakes. Sow the biennial and perennial plants, to ſtand in the ſeminary till the autumn before their flowering: the ground muſt be well dug, and all roots of perennial weeds picked out. Continue ſowing biennial and perennial flowers. Remove yews, hollies, and cypreſſes, where they ſtand too cloſe, planting them to a greater diſtance, if they are not yet wanted in the garden, or ready for it. Sow the ſeeds of the fir and pine kinds. Plant cuttings of exotic trees and ſhrubs. Look carefully over the beds where you ſowed the ſeeds, and fruits of trees and ſhrubs the preceeding autumn; many will be now up, and you muſt cheriſh and protect them: if the weather is too dry refreſh it with water: let no weeds ſtand among them; bait traps for vermin, and ſtick up ſcare-crows to keep off birds.

In the *Fruit-garden*. Finiſh pruning of the peach and nectarine kinds: and when this is done, and they are carefully nailed to the wall, dig the earth in the borders. This is a proper time for pruning new-planted trees, becauſe what parts are dead will now be ſeen diſtinctly, and muſt be cut out. The ſtrawberry-beds ſhould have a careful and thorough dreſſing about the beginning of this month. Dreſs alſo the gooſeberry and currant-buſhes. Fruit-trees may be yet planted, but with the more care as the ſeaſon is advanced. Prune the heads of trees left off in the autumnal plantation. Care muſt be taken of the trees planted in the preceding October: their heads being cut down, the earth muſt be kept from drying about their roots: let a quantity of turf be laid about the root of the tree, and to two feet diſtance all round it. Plant vines about the middle of this month. Take care the earth does not grow too dry about the roots of the new planted vines. Let the raſberry-beds toward the end of the month be well dug.

In the *Kitchen-garden*. Dig a bed about the beginning of this month for a ſecond ſowing of celery. Sow more lettuces, and let them be of the beſt kinds. Dig a piece of light mellow ground for the Dutch parſley. Weed early ſpinach, and thin the plants to four inches diſtance. The gardener ſhould now examine the heat of the cucumber and melon beds, and if it declines, pile up freſh dung in large quantities againſt the ſides. Let a ſmall quantity of peas and beans be put into the ground about the middle of this month, for the means of a continual ſupply during the ſeaſon. Dreſs the aſparagus-beds with a three-pronged fork, ſlant, and with ſhort tynes. Sow a crop of endive on a rich warm piece of ground about the middle of this month. It will now be proper to prepare for a ſecond crop of cucumbers and melons. French-beans muſt be planted this month with care. The cauliflower-plants raiſed upon hot-beds, will, about the end of this month, be of a proper bigneſs for tranſplanting. Sow red cabbage; ſow more parſneps and carrots; ſow alſo more leeks and onions.

In the *Green-houſe* and *Stove*. Take care that every plant be clean from filth, and not a dead leaf left: admit air more freely, chuſing the middle of mild days, and let the waterings be encreaſed in the ſame proportion as the air is admitted. Reduce the heads of myrtles and other trees, where they are too luxuriant, and let the ſtems be waſhed clean, the mould upon the ſurface of the pots taken off, and freſh mould put in its place, and when thus prepared let them have a moderate warmth to promote the ſhooting. Regulate the green-houſe according to the weather; in the middle of mild days the glaſſes muſt be opened a little. Let the temperature of the air in the ſtove be examined, and as the ſevere cold decreaſes let the fires be leſs. Stir up the bark-beds where they are grown uneven, or have loſt their natural warmth, and the plants will require cleaning and watering; let no filth remain upon any part, nor any dead leaves or decaying branches, and let the earth be ſtirred upon the ſurface of the pots, and ſome freſh mould added.

MARIGOLD, *Calendula*, a genus of plants, ranged by Linnæus among the *ſyngeneſia polygamia*, and of which there are ſeven ſpecies. 1. Marigold, with narrow, ſpear-ſhaped leaves, and prickly ſeeds; or the leaſt Marigold. 2. Marigold, with boat-ſhaped, prickly ſeeds in the border, and thoſe in the center bicorned. 3. Marigold, with ſpear-ſhaped, indented leaves, and ſlender foot-ſtalks. 4. Marigold, with ſinuated, indented, ſpear-ſhaped leaves, and a naked ſtalk. 5. Marigold, with indented, ſpear-ſhaped leaves, and the upper part of the foot-ſtalk ſwelling. 6. Marigold, with narrow, entire leaves, and a naked ſtalk. 7. Marigold, with obverſe, oval leaves, which are indented, and a perennial ſhrubby ſtalk.

The firſt ſort grows naturally in the ſouth of France, Spain, and Italy: it riſes with a ſlender, branching ſtalk, which ſpreads near the ground. The leaves are narrow, ſpear-ſhaped, and hairy: they half ſurround the ſtalk at their baſe. The flowers are produced at the extremity of the branches upon long, naked foot-ſtalks. Theſe are very ſmall, and of a pale yellow colour: the ſeeds are long, narrow, and on their outſide armed with prickles.

The ſecond ſpecies is the common Marigold, which is cultivated for uſe in gardens: this is ſo well known as to require no deſcription; of this there are the following varieties: the common ſingle, the double flowering, the largeſt very double flower, the double lemon-coloured flower, and the greater and ſmaller childing Marigold.

Theſe varieties are ſuppoſed to have been originally obtained from the ſeeds of the common Marigold, but theſe differences continue, if the ſeeds are properly ſaved; but the two childing Marigolds, and the largeſt double, are ſubject to degenerate, where care is not taken in ſaving their ſeeds.

The third ſpecies grows naturally at the Cape of Good Hope. This plant is annual, and periſhes ſoon after the ſeeds are perfected.

The lower leaves are oblong, ſpear-ſhaped, and deeply indented on their edges. The ſtalks are produced on every ſide the root which decline towards the ground, with leaves from the bottom to within two inches of the top. The upper part of the ſtalk is very ſlender, upon which reſts one flower, ſhaped like thoſe of the common Marigold, having a purple bottom: and the rays of the flower are of a violet colour on their outſide, and of a pure white within: theſe open when the ſun ſhines, but ſhut up in the evening, and remain ſo in cloudy weather.

The fourth, fifth, ſixth, and ſeventh ſpecies are likewiſe natives of the Cape of Good Hope.

The fourth ſpecies is alſo an annual plant, and has much the appearance of the former, but the leaves are more deeply indented on their edges; the flower is a little ſmaller, and the outſides of the rays are of a fainter purple. The ſeeds of this are flat and heart-ſhaped, but thoſe of the former are long and narrow.

The leaves of the fifth ſpecies are much longer than thoſe of either the former ſorts, and broader at the end: they are regularly indented near the root, but thoſe on the ſtalks have but few and ſhallow indentures. The ſtalks of this ſort are much longer and thicker: and at the top, juſt below the flower, ſwells larger than it is at bottom. The flowers are the ſame colour as the former ſorts.

The ſixth ſpecies is a perennial plant, which divides near the root into ſeveral tufted heads, which are cloſely covered with long graſſy leaves. From between the leaves riſe naked foot-ſtalks, about nine inches long, ſuſtaining one flower at the top, about the ſize of the common Marigold; the bottom is purple, as are the rays on the outſide, but of a pure white within; theſe expand when the ſun ſhines, but always cloſe in cloudy weather, and in the evening.

The ſeventh ſpecies has a ſlender, ſhrubby, perennial ſtalk, which riſes to the height of ſeven or eight feet, but requires ſupport: it ſends out a number of weak branches, which hang downward. The leaves are oval, of a ſhining green on their upper ſide, but paler underneath. The flowers grow at the ends of the branches upon ſhort foot-ſtalks.

Culture of the MARIGOLD.

If the ſeeds of the firſt ſpecies are permitted to ſcatter there will be a ſupply of young plants without any trouble.

In order to preſerve the varieties of the ſecond ſpecies, care ſhould be taken when they are in bloom, to pull off all ſingle flowers as ſoon as they appear, that they may not impregnate the others with their farina. The ſeeds muſt be ſowed from the largeſt and moſt double flowers, and always obſerve to ſow the childing ſort by itſelf in a ſeparate part of the garden, and to ſave the ſeeds from the large centre flowers only.

The ſeeds thus ſaved ſhould be ſown in March or April, where the plants are to remain; when they come up they will require no other culture than to be kept clean from weeds, and thinned to the diſtance of ten inches aſunder, that their branches may have room to ſpread.

The ſeeds of the third, fourth, and fifth ſpecies ſhould be ſown in ſpring, in the borders of the garden where the plants are deſigned to remain. They will require no other care than to be kept clear of weeds: and if their ſeeds are permitted to ſcatter, the plants will come up without any farther trouble.

The ſixth ſpecies ſeldom produces good ſeeds in England: but it is eaſily propagated by ſlips taken off from the heads, and planted any time in ſummer in pots filled with light freſh earth, which may be plunged into a very moderate hot-bed to forward their putting out roots: or the pots may be ſunk in the ground up to their rims, and covered with a melon-glaſs. They muſt be ſhaded in the heat of the day, and frequently, but gently watered.

When they have got roots they muſt be planted into ſeparate ſmall pots filled as before, and placed in a ſhady ſituation till they have taken freſh root, when they may be placed in the open air in a ſheltered ſituation: here they may remain till autumn, and then removed into a dry, airy glaſs-caſe for the winter ſeaſon, or under a common hot bed frame.

The ſeventh ſpecies is eaſily propagated by cuttings, which may be planted any time in ſummer in a ſhady border. In five or ſix weeks they will have taken root, when they ſhould be carefully taken up, and each put into a ſeparate pot, and placed in the ſhade till they have taken freſh root, after which they may be ſet out with other hardy exotics in a ſheltered ſituation, where they may remain till the froſts begin, when they muſt be removed into the green-houſe, placing them near the windows that they may enjoy the free air, for they only require protection from froſt.

African or *French* MARIGOLD, *Tagetes*, a genus of plants, ranged by Linnæus among the *ſyngeneſia polygamia ſuperflua*: of which there are three ſpecies. 1. Marigold, with a diffuſed, ſubdivided ſtalk, commonly called French Marigold. 2. African Marigold, with a ſingle, erect ſtalk, and naked foot-ſtalks, bearing ſingle flowers. 3. African Marigold, with a ſingle, erect ſtalk, and ſcaly foot-ſtalks, bearing many flowers.

Each of theſe ſpecies have many varieties ariſing from culture.

The firſt ſpecies is a native of South America and ſome parts of Africa. We diſtinguiſh it by the title of French Marigold, the French having firſt taught us to raiſe it in our gardens.

The root is formed of innumerable fibres, joined to an oblong central part. The ſtalk is two feet and a half high, weak branched, brown, and ſpreading. The leaves are large, of a deep green, and beautifully pinnated, the pinnæ being placed on ſlender ribs, and in themſelves narrow, oblong, ſerrated ſharply, and ſharp-pointed. The flowers riſing on ſmall ſtalks from the boſoms of the leaves, and terminating all the branches, cover the plant in vaſt profuſion; and if gathered before they fade, or ſet for ſeed, others will ſucceed in greater number, and the plant continue flowering in all its luſtre till the latter end of November, and longer, if froſts do not deſtroy the root.

The flower is large, and in its natural ſtate ſingle, nor is it then without its beauty, the colour being mixed, of an extreme dark, purpliſh brown, and a gold yellow: but by culture it becomes double, ſtriped, and party-coloured; in ſome plants the petals of theſe double flowers roll themſelves into quills, but this is not to be encouraged; it is a great beauty in the African, or larger kind, becauſe that has no great variety of colouring: but in this ſpecies the gardener's art ſhould be employed to ſtreak and ſtripe the flowers: and not to twiſt up, but diſplay the petals flat or waved, to ſhew that ſingular elegance.

The root of the ſecond ſpecies has innumerable fibres. The ſtalk is upright, firm, and a yard high: it does not ſpread out into wild branches as the former ſort. The leaves are large and pinnated: their colour is a duſky though not a dark green; and the pinnæ are oblong, and ſharp-pointed, ſomewhat broad and ſerrated. The flowers are large, numerous, naturally ſingle, and of a pale yellow. A richer ſoil deepens their colour, ſo that they vary from the paleſt lemon to the deepeſt orange. The petals, which are multiplied innumerably by the gardener's art, are rendered from their plain natural form, waved, curled, and tubular; this laſt is their moſt beautiful appearance, and in this ſpecies it is greatly to be encouraged: for as it has not that variety of ſtripes which is in the preceding, this elegant form is to be conſulted.

The third ſpecies is a plant of no great beauty, therefore ſeldom admitted into any other than botanic gardens.

Culture of the African and French MARIGOLD.

Theſe plants are annual, ſo muſt be raiſed from ſeeds every ſpring. The procuring theſe good is the firſt article: and for this purpoſe when the plants are in full bloom, the gardener ſhould mark the beſt ſtriped of the French Marigold, and the largeſt and moſt quilled of the African. When a few fine flowers of theſe have been fixed upon for ſeed, let all the reſt be cut off in the bud, that the whole ſtrength of the plant may be employed in perfecting the ſeed. Every day, two hours before ſunſet, let theſe plants be watered. Obſerve to tie them up to ſtakes that the wind may not rock them at the root. When the ſeeds are near ripe, leave off the waterings, and let them harden upon the plant as the root decays. After this, in the middle of a dry day, cut the heads carefully off, and lay them upon a papered ſhelf in an airy room.

In the laſt week in February let them be ſowed upon a hot-bed of a moderate heat, and well covered with rich garden-mould.

When the ſeeds are ſown, make the following compoſt: mix equal parts of earth from under the turf in a rich paſture, and good mellow garden mould: add a ſmall quantity of well rotted dung, and to a load of this put two buſhels of coarſe ſand.

When the plants come up let them by degrees be inured to the air: and when they have grown to a finger's length in height, let another hot-bed be prepared for them in ſome ſheltered part of the ground, and not covered with frames, but let hoops be placed over it at ſmall diſtances, that a mat or cloth may be drawn over. Cover this ſeven inches deep with the compoſt, and then draw lines lengthways and acroſs at eight inches diſtance: open holes in the centre of every ſquare, and carefully ſet in one plant. Water them well, and draw a mat over the hoops, letting it fall cloſe at the ends. Thus let them ſtand till rooted, then by degrees raiſe the mats in the middle of the day, and harden them gradually; for if they are drawn up too cloſe, they are often ill-ſhaped, and ſubject to be ſtunted when brought out into the open air, the change being too ſudden: but by the above method they will be inured to their proper ſituation without any violence; the heat of the bed will decreaſe as they grow up, and they will be day by day more expoſed, till in the middle of a warm cloudy day the mat may be wholly taken off, and put on no more.

As ſoon as the plants are ready for removal, open holes in the borders where they are to ſtand. Make two of theſe holes in each place, near one other, and ſet a plant upright in each, filling them up with the compoſt inſtead of the mould that was dug out, ſifting a little of the common mould over it, that the border may all look of one colour. Water the plants carefully, and they will ſoon be well rooted, and make their ſhoots for flowering. Notwithſtanding the ſeeds were all from double flowers, there will be many ſingle, which muſt be pulled up and thrown away.

When one of the two plants in a place is ſingle, and the other double, the ſingle one being taken up, there remains the other for flowering, and no more trouble is required. Where they are both ſingle, both muſt be pulled up, and one from ſome place where they are both double, planted in the room. There will ſtill remain ſome places where both the plants are double, one from theſe muſt be ſet in a pot filled with the compoſt.

When the plants are thus all diſpoſed, the gardener muſt thruſt into the ground near each a ſhort firm ſtake. Let it ſtand above the ground half the height of the plant, and tying the ſtalk carefully to it, let it remain covered by the leaves. The ſame muſt be done in the pots, and thus the plants will be ſecured from the winds.

After this let all the plants be watered every other day towards evening, and they will flower in full perfection. Thoſe in the pots will be the ſmalleſt plants, but they will often produce the fineſt flowers.

Æthiopian MARIGOLD. This is an elegant and ſingular perennial plant. It has every advantage which profuſion of flowers, laſting beauty, and an eaſy culture can give, to recommend it to our attention. The root is brown and fibrous: it ſpreads under the ſurface of the ground, and laſts many years. The leaves riſe from it in regular thick tufts: they are four inches long, and moderately broad, ſmalleſt at the baſe, larger to the end, deeply ſinuated, and ſharp-pointed as a ſpear. They are of a fleſhy ſubſtance, and of a fine green colour; among theſe riſe the ſtalks: they are numerous, upright, naked, and of a bright pale green: each ſuſtains a ſingle flower, which is very large and beautiful. It conſiſts of a central diſk, and radiated edge: and in each part there is great elegance and variety. The rays or long petals of the edge are of a perfect white within, and of a bloody purple on the outſide.

Culture of the Æthiopian MARIGOLD.

This plant muſt be firſt raiſed from ſeeds, and then may be propagated by parting of the roots. Sow the ſeeds upon a hot-bed in the ſpring, with thoſe of the *Marvel of Peru*; treat the plants in the ſame manner: and when thoſe are planted out, let theſe be alſo ſet in large pots, filled with the following compoſt: mix equal parts of pond-mud, coarſe-ſand, and earth from under a wood-pile.

In the centre of each pot place one of the plants, and ſettle the earth well to their roots. When they have got ſtrength from the ſetting, place them in the open air among the green-houſe plants, where they may remain till October, when they muſt be removed into the ſtove, and there preſerved the winter. There uſually break out ſome very fine flowers upon them the firſt year, but the May following buds will appear in great numbers, and they muſt then be watered frequently. As the flowers fade let their ſtalks be cut off, and they will thus be loaded with a freſh ſucceſſion moſt part of the ſeaſon.

Corn MARIGOLD. See the article CHRYSANTHEMUM.

Fig MARIGOLD, *Meſembryanthemum*, a genus of plants, ranged by Linnæus among the *icoſandria pentagynia*. Botaniſts diſtinguiſh a vaſt many ſpecies of this plant, but the above-named writer has reduced them to the thirty-five following. 1. Fig Marigold, with taper, obtuſe, hairy leaves, placed alternately, called the Egyptian Hali. 2. Fig Marigold, with oval, obtuſe, waved leaves, placed alternately, commonly called the Diamond Ficoides, Diamond Plant, or Ice Plant. 3. Fig Marigold, with half taper leaves, and flowers ſitting cloſe to the wings of the ſtalks. 4. Fig Marigold, with half cylindrical leaves, and quadrifid flowers. 5. Fig Marigold, with awl-ſhaped, three-cornered leaves, an erect ſtalk, and a corymbus of flowers at the triple diviſion of the ſtalk. 6. Fig Marigold, without a ſtalk, with half taper leaves, which join at the baſe, and flowers with eight ſtyles. 7. Fig Marigold, with plain, ſpear-ſhaped, circulated leaves. 8. Fig Marigold, without a ſtalk, with narrow, three-cornered leaves, marked with three indentures at their points. 9. Fig Marigold, having ſtalks, and three-cornered, indented leaves, which are ſhaped like the Greek Delta. 10. Fig Marigold, with the points of the leaves bearded. 11. Fig Marigold, with a prickly ſtalk, and deflexed, cylindrical leaves. 12. Fig Marigold, with the ſtalks and leaves decorated with downy hair. 13. Fig Marigold, with awl-ſhaped leaves, which are every where rough on their under-ſide. 14. Fig Marigold, with the joints of the ſtalks terminated by acute-pointed leaves, which are indented on their under-ſide, commonly called Buckſhorn Ficoides. 15. Fig Marigold, with branching ſpines. 16. Fig Marigold, with awl-ſhaped, prickly leaves, and a bearded root. 17. Fig Marigold, with awl-ſhaped, half taper, ſmooth leaves, which are longer between the joints. 18. Fig Marigold, with awl-ſhaped, cylindrical leaves, having diſtinct, dark-coloured pimples. 19. Fig Marigold, with a creeping ſtalk, which is half cylindrical, and with half cylindrical ſmooth leaves, joining at their baſe, and their points three-cornered. 20. Fig Marigold, with diſtinct, ſmooth falchion-ſhaped leaves, and taper branches. 21. Fig Marigold, with falchion-ſhaped leaves, connected at their baſe, with the keel-ſhaped angle rough, and with angulated branches. 22. Fig Marigold, with rough, three-cornered leaves, and petals to the flowers, which are of two colours. 23. Fig Marigold, with awl-ſhaped, three-cornered leaves, and with the keel-ſhaped angle ſawed on the out-ſide. 24. Fig Marigold, with awl-ſhaped, cylindrical leaves, which are pimply and diſtinct, and a rough ſtalk. 25. Fig Marigold, with linear, obſolete, three-cornered leaves, which are diſtinct and ſmooth, and imbricated at the top. 26. Fig Marigold, without a ſtalk, with half cylindrical leaves, which have tubercles on their outſides, and are joined together. 27. Fig Marigold, with cut, cylindrical leaves, connected together at their baſe, bowed and ſmooth. 28. Fig Marigold, with awl-ſhaped, three-cornered leaves, marked with obſolete, pellucid punctures. 29. Stalky Fig Marigold, with awl-ſhaped, ſemi-cylindrical, recurved, long leaves, which are connected at their baſe. 30. Fig Marigold, with plain, oval, acuminated, entire leaves, which are placed oppoſite, and connected together at their baſe. 31. Fig Marigold, with a ſhort ſtalk, and leaves having hairy indentures, commonly called Dogs Chap Ficoides. 32. Fig Marigold, with ax-ſhaped leaves. 33. Fig Marigold, with diſarmed leaves. 34. Fig Marigold, without a ſtalk, with tongue-ſhaped leaves, the borders of which are thicker on one ſide. 35. Fig Marigold, with alternate, awl-ſhaped, three-cornered, very long leaves.

Theſe ſpecies are all of them natives of Africa, and have beautiful flowers, which appear at different ſeaſons of the year, ſome of them flowering early in the ſpring, others in ſummer, ſome in the autumn, and ſome even in winter.

Culture of the Fig MARIGOLD.

The firſt and ſecond ſpecies are annual plants, and all the reſt perennial.

For the deſcription and culture of the ſecond ſpecies, ſee the article ICE-PLANT.

All the other ſpecies are propagated by cuttings, during any of the ſummer months, which ſhould be planted in a bed of light ſoil, covered with mats or glaſſes; a little water ſhould be given them to ſettle the ground about them, and they muſt be ſhaded in the heat of the day for ſome time, to prevent the ground from drying too faſt. In about ſix weeks the cuttings will have taken root, then they ſhould be carefully taken up, and each planted in a ſeparate pot filled with light ſandy earth, and placed in a ſhady ſituation, giving them a little water as before. In this place they may ſtand ten days or a fortnight, till they have taken good root: after which they may be removed to a ſheltered place, where they will have more ſun, and where they may remain till autumn, and in winter let them be ſheltered under a common frame, where, if they are protected from froſt and wet, it is all the care they will require.

French or *African* MARIGOLD. See the article *African* MARIGOLD.

Marſh MARIGOLD, *Caltha*, a genus of plants, ranged by Linnæus among the *polyandria polygamia*, and of which there is only one ſpecies.

This plant grows upon moiſt, boggy lands, in moſt parts of England; but there is a variety of it which is cultivated in gardens, and the extreme beauty of its double flowers renders it worthy a place in every collection.

Culture of the Marſh MARIGOLD.

It is propagated by parting of the roots in autumn. They ſhould be planted in a moiſt ſoil and a ſhady ſituation, and when the plants come up they will only require the common care of being kept clean from weeds, and ſometimes watered.

MARJORAM, a ſpecies of Origany. See the article ORIGANY.

MARTAGON, a ſpecies of Lily. There are many beautiful varieties of this plant, of which the three following are extremely elegant. 1. Imperial Martagon. 2. Two-ſtaged Martagon. 3. Late Pomponian Martagon.

Imperial MARTAGON. The root of this plant is roundiſh, ſmall, yellow, and formed of numerous pointed ſcales. The ſtalk is upright, firm, round, of a purpliſh colour, and two feet and a half high: towards the top it is a little hairy, and ſometimes all the way. The leaves are ſhort, broad, and of a deep green: ſmall at the baſe, and veined with conſpicuous ribs on the under-ſide: they grow in regular cluſters, at certain diſtances, ſurrounding the ſtalk. Toward the top there ſtand a few looſe ſcattered leaves, which are longer and narrower than the others. The flowers are very beautiful, they crown the ſtalk in great numbers, and riſe one above another in a kind of pyramidal form. They are large, and of a pale red, ſpotted with a deeper red or purple, in a various and irregular manner, but very pleaſing. Each flower has its ſeparate foot-ſtalk, and hangs down, but every petal turns up again. The whole head of theſe is very numerous, and their ſmell a delicate and roſy ſweet.

Culture of this MARTAGON.

It is propagated either from ſeeds or by parting of the roots: the latter is the moſt common method, but the former is the beſt: either way the following compoſt muſt be prepared for them.

A buſhel of pond-mud, two buſhels of rich paſture-mould, half a buſhel of wood-pile earth, and a peck of ſand; theſe ſhould be mixed in ſpring, and turned two or three times between that ſeaſon and July, when it will be proper to plant the off-ſets from the roots.

Theſe are to be taken off when the ſtalks are decayed, and they muſt be planted immediately. A part of the garden ſhould be choſen where there is the morning ſun and ſome ſhade: here the compoſt muſt be put in the place of the common mould; let the off-ſets be planted at two feet diſtance, and afterwards kept clear from weeds and occaſionally watered.

This is the common method of culture: but the plants raiſed from ſeeds will be far preferable, the flowers will be larger, and more elegantly ſpotted, and the varieties almoſt numberleſs.

The ſeeds ſhould be ſaved from a ſtrong and healthy plant, and ſown on a bed of the ſame compoſt, in a part of the ſeminary open to the morning ſun for two hours, but ſheltered from its rays during the reſt of the day. The beſt time for this is the middle of Auguſt: they muſt be ſcattered thick upon the mould, and covered a finger's breadth with the ſame compoſt ſifted over them. From this time the bed muſt be kept clean from weeds, and ſometimes ſlightly watered. In the ſucceeding ſpring they will ſhoot, and the young plants, when they have a little growth, muſt be thinned where they have riſen too cloſe; and when the leaves are decayed, cover the roots with half an inch of freſh mould.

The ſucceeding Auguſt the mould muſt be ſifted, the roots taken carefully out, and planted in the garden, in a new bed of the ſame compoſt, a little more expoſed to the ſun, but ſtill ſhaded from the full blaze of noon. They ſhould be planted at a foot diſtance, and managed as before, weeding and watering till they flower.

There will be found a great many varieties, and the beſt ſhould be marked while in flower; theſe muſt be preſerved ſeparate afterwards, and the reſt planted out into common borders. The varieties conſiſt in three particulars. Firſt, in the ground colour of the flower, which will be fleſhy, crimſon, or pale purple; ſecondly, in the tinct of the ſpots, which will be of a deep orange, blood colour, or a violet purple, or almoſt black; thirdly, in their diſtribution and form, ſome will be round, others oblong, and they will throw themſelves into various wild arrangements.

When the fineſt flowers have been ſeparated from the reſt, their roots muſt be taken up as ſoon as the ſtalk is decayed, and planted again immediately in a freſh compoſt of the ſame kind, at two feet diſtance. This muſt be done every year: the off-ſets muſt be always carefully taken off, and the old compoſt cleared away.

The third year of their flowering let ſeeds be ſaved from one of the fineſt plants, and theſe ſown, and the plants managed juſt as directed for the firſt.

Two-ſtaged MARTAGON. The root of this is larger than in the other kind, proportioned to the plant: it is compoſed of numerous ſcales, and has ſeveral thick fibres. The ſtalk is round, firm, perfectly upright, and more than a yard high. Its colour is naturally a duſky green, and it is ſtained in various degrees with purple. The leaves are broad, ſhort, and of a deep green, with high veins on the under part. There are uſually four or five circles of them round the ſtalk, at different diſtances: and toward the top two or three looſe, irregular, and ſmaller leaves, narrower, and of another form. The flowers are extremely numerous and elegant, and they are diſpoſed in a pyramidal, but interrupted ſpike. At ſome conſiderable diſtance above the uppermoſt leaves, there riſes a cluſter of them on long foot-ſtalks: theſe ſurround the ſtalk, and form a kind of circular crown; above theſe it is for ſome ſpace naked, and then begins another ſpecies of flowers, forming a compleat ſpike to the top. The ground colour of the flower is a pale fleſhy crimſon: the ſpots are frequent, and of a perfect blood-colour. The ſcent is muſky, ſweet, and very ſtrong.

Culture of this MARTAGON.

It is an accidental variety produced from the ſeeds of the common ſort, and nothing is more precarious than its propagation. When ſuch a flower is once obtained more than ordinary care muſt be taken of it, and of its off-ſets. No change muſt be made in the ſoil, but it muſt be allowed a ſufficient quantity: nothing ſhould ſtand within three feet of it, the ſtalk ſhould be firmly ſecured by a ſtake and frequent tying, and the ſpace of ground devoted to its nouriſhment muſt be often ſtirred and oftener watered. In this manner the plant is to be brought to flower, and in order to ſave ſeed from it, the upper ſpike of flowers ſhould be cut off before they blow, and only the crown or lower circle left to perfect their ſeed. This will be ſtrong and vigorous in the higheſt degree, and in all probability, when ſown again, will re-produce the two-ſtaged kind.

Late Pomponian MARTAGON. The root of this ſpecies is very ſingular: it is not compoſed of thick ſcales as in the others, but coated as an onion. The ſtalk is ſimple, firm, upright, two feet and a half high, round, ſtriated, and of a pale green, tinged with brown or yellow. The leaves are very numerous, and ſtand irregularly; they are of a moderate length, narrow, and in ſome degree triangular, ſharp-pointed, and of a ſtrong and lively green. The flowers are very numerous and beautiful, they crown the ſtalk, and riſe alſo from the boſoms of the upper leaves. They have long foot-ſtalks, from which they hang drooping. Their colour is a high and perfect ſcarlet, ſpotted with black.

Culture of this Martagon.

The ſeeds of the early, or common Pomponian Martagon raiſe this. A warm ſpot of ground ſhould be choſen for it, and the roots muſt be planted deep to defend them from the ſeverity of the froſt; they muſt not have a moiſt or too rich ſoil.

The beſt compoſt for them is rich paſture-earth, with a little wood-pile mould and rotted cow-dung; this ſhould be mixed up in ſpring, and it will be ready to receive the ſeeds in autumn.

Theſe muſt be ſaved from ſtrong healthy plants, and in autumn a bed muſt be made up in the ſeminary with the above compoſt, chuſing a ſpot that is open to the ſouth-eaſt, and defended from all the cold quarters. The ſurface of the bed muſt be raked level, and the ſeeds ſcattered over it with an even hand: they ſhould be ſown thick, for many fail. When the plants come up they muſt be thinned and weeded; and in autumn, when the leaves decay, half an inch of the ſame mould muſt be ſifted over the whole bed. In this manner they muſt be kept one year more, and it will then be time to remove them.

A bed muſt be made up with the ſame compoſt in ſome ſheltered part of the garden, and the roots taken up ſoon after the leaves have faded, and planted in this bed at ten inches diſtance, covering them two inches with the compoſt; here they are to ſtand till they flower, when there will be found a great variety: ſome will be of a dark, ſome of a pale tinct, ſome a perfect red, and others yellowiſh.

The fineſt muſt be marked, and the reſt, when the leaves are decayed, muſt be taken up, and planted in other places. By this method the fine flowers which are left will have good room, and they muſt at the approach of winter be covered with another inch of the ſame mould. Their proper place in the earth is about five inches under the ſurface, they never fail to ſhoot ſtrong through this, and the burying them thus is their beſt defence during the winter.

The next year they will ſhew their flowers in perfection, and from this time they are to be treated as others of the ſame kind. They ſhould be taken up every year as ſoon as the ſtalks and leaves are decayed, and planted again in a freſh bed of the ſame ſoil: they muſt be ſheltered from the north winds, and open to the morning ſun, but defended from that of noon-day: and they will thus produce abundance of flowers, extremely elegant, and very laſting.

MARSH-MALLOWS. See the article *Marſh*-Mallows.

MARSH-MARIGOLD. See *Marſh*-Marigold.

MARTYNIA, a genus of plants, which has no Engliſh name, and only three ſpecies. 1. Martynia, with a branching ſtalk and angular leaves. 2. Martynia, with a ſingle ſtalk and ſawed leaves. 3. Martynia, with a branching ſtalk and oval, heart-ſhaped, hairy leaves.

The firſt ſpecies riſes with a ſtrong herbaceous ſtalk near three feet high. The leaves are oblong, oval, hairy, and cut into angles on their ſides. The flowers grow in ſhort ſpikes at the ends of the branches: they are of a pale purple colour, and ſucceeded by oblong, oval capſules; when theſe are ripe they divide into two parts and drop off, leaving a large hard nut hanging on the plant: within are four oblong cells, two of which have a ſingle oblong ſeed in each, but the other two are abortive. If the plants are brought forward in the ſpring, they will begin to ſhew their flowers in July, and there will be a ſucceſſion of them on the ſame plant till the end of September, when the plants decay.

The ſecond ſpecies is a native of Carthagena in New Spain. It has a perennial root and an annual ſtalk. The roots are thick, fleſhy, and divided into ſcaly knots: from this riſe ſeveral ſingle, fleſhy, ſucculent ſtalks, about a foot high, of a purpliſh colour. The leaves are thick, oblong, ſawed on their edges, rough on their upper ſide, where they are of a dark colour, but their under ſide is purpliſh. A ſpike of blue flowers crowns the top of the ſtalk. They are not ſucceeded by ſeeds in England.

The third ſpecies grows naturally in the Miſſiſſippi. It riſes with a thick fleſhy ſtalk about two feet high, which divides into three, and ſometimes four ſpreading branches. The leaves are oval, heart-ſhaped, very viſcous, hairy, and of a ſoft green. The flowers terminate the branches in a looſe thyrſe: their colour is a very pale purple; they are ſucceeded by large oval fruit, ſhelled like a walnut: when the fruit is ripe this ſhell drops off, and leaves a hard fibrous nut hanging on the plant, which opens in the middle, having four cells, each containing three or four oval ſeeds.

Culture of the Martynia.

The firſt and third ſpecies being annual plants are only propagated by ſeeds, which ſhould be ſown in pots and plunged into a hot-bed of tanners-bark, where, if the ſeeds are intirely ſeparated from their covers, the plants will appear in about a month, and will grow tolerably faſt if the bed is warm. In a little time after they appear they ſhould be tranſplanted each into a ſeparate pot, and plunged into the bark-bed again, where they muſt be watered and ſhaded till they have taken freſh root, after which they ſhould have a large ſhare of free air admitted to them.

In about a month they will have filled the pots with their roots, when they ſhould be removed into pots about a foot diameter at the top, and plunged into the hot-bed in the bark-ſtove, where they ſhould be allowed room, for they put out many ſide-branches, and will grow three feet high or more, according to the warmth of the bed and the care which is taken to ſupply them conſtantly with water.

When theſe plants thrive well the ſide-branches will all produce ſmall ſpikes of flowers, but it is only from the firſt ſpike that good ſeeds can be obtained, ſo that great care ſhould be taken not to pull off or deſtroy any of the flowers.

The ſecond ſpecies is propagated by parting of the roots, the proper time for this is about the middle of March: they muſt be planted in pots of a middling ſize and plunged into the bark-bed, where they muſt always remain. The plants die to the root every winter, at which ſeaſon they muſt have very little water, and in every reſpect treated like other tender exotics which require the bark-ſtove.

MARVEL-of-PERU, or Four-o'Clock-Flower, *Mirabilis*, a genus of plants, ranged by Linnæus among the *pentandria monogynia:* he diſtinguiſhes only one ſpecies of it, of which the Jalap of the ſhops is a variety.

This plant is a native of both Indies. It riſes a yard high, and ſpreads into numerous branches. The root is long and thick, and has many fibres. The ſtalk is jointed, and the leaves are placed in pairs: they are oblong, broad, and not divided at the edges. Their colour is a fine deep green. The flowers are extremely beautiful: ſome terminate the ſtalks, and others riſe from the boſoms of the leaves and branches: they are broad, expanded, and of various dyes, not only on different plants, but often on the ſame. The natural colour is a tawny yellow, but from this they vary into the deepeſt purple, and the fainteſt fleſh-colour: ſometimes they are of a pure ſnow-white, and at others variegated in a moſt elegant manner with purple and white, fleſh-colour and white, or all theſe colours, and the original yellow.

Culture of the Marvel-of-Peru.

It is propagated by ſeeds, which ſhould be ſown in the ſprrng upon a moderate hot-bed. When the plants come up they muſt have plenty of free air admitted to them if the weather is mild: and when they are two inches high, they ſhould be tranſplanted on another moderate hot-bed, or planted each in a ſmall pot filled with light earth, and plunged into a moderate hot-bed, where they muſt be ſhaded till they have taken new root, after which they muſt be gradually inured to the open air, and in June tranſplanted into the borders of the pleaſure-garden.

During the time of flowering the plants ſhould have a little water twice a day.

MASTERWORT, *Imperatoria*, a genus of plants, ranged by Linnæus among the *pentandria digynia*, and of which there is only one ſpecies.

This is a perennial plant which grows naturally upon the mountains of Auſtria and Switzerland. The root is about the thickneſs of a man's thumb; the leaves riſe from the root: they have long foot-ſtalks, dividing into three very ſhort ones at the top, each ſuſtaining a trifoliate leaf, indented on the border. The flower-ſtalks riſe about two feet high: they divide into two or three branches, and each is terminated by a large umbel of white flowers.

Culture of the MASTERWORT.

It is propagated either by ſeeds or by parting of the roots. If by ſeeds they ſhould be ſown in autumn ſoon after they are ripe, on a bed or border in a ſhady ſituation.

In the ſpring, when the plants appear, they ſhould be carefully weeded: and if the ſeaſon ſhould prove very dry, let them be now and then refreſhed with water, which will greatly promote their growth.

About the beginning of May, if you find the plants come up cloſe together, prepare a moiſt ſhady border, and thin the plants ſo as to leave them at the diſtance of ſix inches aſunder: plant thoſe which you draw up into the border, about the ſame diſtance apart, being careful, if the ſeaſon ſhould prove dry, to water them duly till they have taken new root: after which time theſe plants, as alſo thoſe remaining on the ſeed-beds, will require no other culture but to be kept free from weeds, which may be eaſily effected, by hoeing the ground between the plants now and then in dry weather.

The following autumn they ſhould be tranſplanted to the places where they are deſigned to remain, which ſhould be in a rich moiſt ſoil, at the diſtance of two feet aſunder. When they have taken root they will require no other care than to be kept clean from weeds. In the ſpring, before they ſhoot, the ground ſhould be every year gently dug between the plants, in doing which great care ſhould be taken not to injure their roots.

If you would propagate this plant by off-ſets, the roots ſhould be parted at Michaelmas, and planted in a ſhady ſituation, at the diſtance already directed for the ſeedling plants, and they require the ſame management.

MASTICK, a ſpecies of Tree Germander. See the article *Tree* GERMANDER.

MASTICK-THYME, a ſpecies of Savory. See the article SAVORY.

MASTICK-TREE, a ſpecies of Piſtacia. See the article PISTACIA.

Indian MASTICK, *Schinus*, a genus of plants, of which there are two ſpecies. 1. Indian Maſtick, with winged leaves, whoſe lobes are ſawed. 2. Indian Maſtick, with winged leaves, and jointed bordered foot-ſtalks, having thorns on the under ſide.

The firſt ſpecies is a native of Peru and Mexico. It riſes with a woody ſtalk eleven or twelve feet high, dividing into many branches. The leaves are compoſed of ſeveral pair of lobes, terminated by one which is longer than the reſt: they are of a lucid green. The flowers grow at the ends of the branches in looſe bunches; they are very ſmall, and their colour is a perfect white.

The ſecond ſpecies is a native of the Weſt Indies. It riſes with a ligneous ſtalk ten feet high, ſending out many branches. The leaves are winged, the mid-rib of them is bordered and jointed, and armed with crooked ſpines under each joint.

Culture of the Indian MASTICK.

The firſt ſpecies is propagated by ſeeds, which ſhould be ſown in pots, and plunged into a moderate hot-bed. If the ſeeds are good the plants will appear in about five or ſix weeks: and if they are properly managed, by admitting freſh air to them, according to the warmth of the ſeaſon, they will be fit to remove in ſix weeks after, when they ſhould be each planted in a ſmall pot, and plunged again into a moderate hot-bed, ſhading them from the ſun till they have taken freſh root, when they muſt be gradually inured to the open air, into which they ſhould be removed ſoon after, placing them in a warm ſituation, where they may remain till autumn, but they muſt be removed into ſhelter before the firſt froſts, otherwiſe their tops will be killed, which generally deſtroys the plants.

This ſpecies may alſo be propagated by layers and cuttings: the layers ſhould be put down in the ſpring, and by the following ſpring they will be rooted. The cuttings ſhould be planted in April, which will put out roots in about two months, and may afterwards be treated as the ſeedling plants.

The ſecond ſpecies is propagated by ſeeds, which ſhould be ſown in ſmall pots, and plunged into a hot-bed of tanners-bark: theſe ſeeds will often lie three or four months in the ground, and ſometimes a whole year; therefore if the plants ſhould not come up the ſame year, the earth ſhould not be diſturbed in the pots, but in the winter placed in the bark-bed in the ſtove, and the ſpring following plunged again into a freſh hot-bed, which will bring up the plants if the ſeeds are good. When the plants are fit to remove, they ſhould be each planted in a ſeparate ſmall pot, and plunged into the tan-bed, where they muſt be ſhaded till they have taken new root, after which they muſt be treated as other tender ſtove-plants.

MAUDLIN, a ſpecies of Achillea. See the article ACHILLEA.

MAY, the fifth month of the year.

In the *Flower-garden*. Take care of the auriculas now in bloom, as alſo of the hyacinths, ranunculus's, anemonies, and tulips; the wind, rain, and ſun muſt be kept off by moderate coverings. The amaryllis's, and other autumnal flowers, muſt now have their roots taken out of the ground: let this be done with care, and dry them gently upon mats in an airy place, out of the reach of the ſun, then tie them up in parcels till the time of planting them towards the end of ſummer. Harden the tender annuals to the air, and now plant the ſtrongeſt and moſt forward of them. Sow hardy annuals on the borders, and give them free and frequent waterings. Obſerve the leaves of the hyacinths which are paſt flowering, they will begin to decay, and the roots ſhould be taken out of the ground. Shade the beds of fine flowers at noon, and let them occaſionally have water. Keep the borders, graſs, and gravel-walks in order: the gravel ſhould be rolled often and cleaned from weeds, the borders ſhould not only be weeded but ſtirred and raked once in three or four days. Take up the roots of fine colchicums, and clean them and ſpread them out on a mat in a dry airy room: when they are a little hardened put them up till the time of planting, which ſhould be about nine weeks after; different roots require various management in this reſpect: there is in many of the bulbous roots a time of reſt between the decay of the leaves and ſhooting of the next bloom. The tuberous rooted flowers of autumn will about the middle of this month be in a ſtate to be removed: theſe are to be taken up and planted afreſh as ſoon as out of the ground. See in what place the climbing plants will be proper, and ſow them. Carnations towards the end of this month will ſhew the buds for their flowering: let the plants be examined carefully, all decayed leaves taken off, and the ſtalks tied to ſticks. The tendereſt annuals raiſed in hot-beds may now have their laſt removal. Plant ſome good roots of tuberoſe in a hot-bed that has a moderate warmth, and they will flower about October. As the leaves of the bulbous and tuberous-rooted ſpring-flowers decay take up the roots, clear them from mould, ſpread them upon a mat in a ſhady place, and then put them up for the next plantation. Keep the boxes of ſeedling flowers where they have only the morning ſun. The carnations will, about the end of this month, grow more forward towards flowering: the earth muſt be kept moiſtened, and inſects picked off, if at any time found upon the plant. Auriculas, as they are paſt flowering, muſt be removed from the ſtands, and placed on ſome part of the ground where they can have only the morning ſun: after this no moſs or weeds muſt be ſuffered to grow upon the mould, and thus they are to be left for ſummer. Look over the borders and ſee where any thing can be added for the autumn flowering: clean and lay in order every part of the ground. The flower-beds muſt be kept clean from weeds, and none ſhould be ſuffered to remain any where about the garden. Mow graſs-walks frequently, and let the gravel be kept rolled and cleaned.

In the *Seminary*. Plant out in the open ground ſuch ſeedlings of exotic trees and ſhrubs as are to ſtand the weather, but requiring ſome care, and while young, are firſt raiſed in pots. Dig up a piece of ground in a warm and ſheltered part of the nurſery, for ſowing ſome of the American trees, particularly the coniferous kinds. In this month weeds riſe up abundantly, and muſt be every where deſtroyed. Clear the beds of ſeedling plants and trees by hand, and when the earth is broken by pulling up the roots, give a gentle watering. Next clear the rows of new-planted trees. Examine the beds ſown in the ſpring, and on which there is yet no appearance of any ſhoot; they will require defence and watering. Tranſplanting may be continued in the open air for certain kinds and on particular occaſions, during this month. In the nurſery of flowering plants for the next year, this is now to be managed with due care. Look over grafted trees, and give them liberty at the bandage; let the loam be cleared away, and the baſs untied, and with a flannel wetted in water juſt made milk-warm, let the part be waſhed clean. Seedling trees which have been raiſed in ſeparate beds in the ſeminary, will require frequent waterings towards the end of this month; weed them alſo carefully from time to time, and give the waterings an hour before ſun-ſet. Let the gardener now take the advantage of a ſhowery day for the laying ſome branches of thoſe ſhrubs and trees which will not readily take root, except by the ſhoots of the ſame years growth: this is the caſe with ſeveral of the ever-greens, and with the generality of the woody, climbing plants. Water the biennial and perennial flower-roots raiſed from ſeed laſt ſeaſon, and now tranſplanted into ſeparate beds, and keep the ground clear from weeds between them. Look over the trees that were budded laſt ſeaſon, ſee that the roots be not defrauded of nouriſhment, nor left in the way of miſchief from inſects; ſuffer no ſhoots from the ſtock, theſe muſt be rubbed as ſoon as they appear. The beds of ſeedling plants and ſhrubs muſt be watered at times, and ſhaded from the full noon-day ſun: the mould muſt be kept perfectly free from weeds between them, and now and then broke with a trowel. No part of the gardener's ground requires moiſture ſo much as the nurſery: let him from time to time examine the condition of the mould about the new planted as well as ſeedling trees and ſhrubs, and where he finds nature has not given moiſture enough, ſupply it with water.

In the *Fruit-garden*. Take care of the forcing frames, they muſt be frequently ſtirred up about the roots, and they muſt have every day a moderate watering. The trees muſt be opened to the air, and every other day it will be very ſerviceable to water them all over branches, leaves, and fruit. Look over fruit-trees againſt walls, if any branches are looſe faſten them carefully: rub off all the fore-right and irregular ſhoots, and train to proper places thoſe that are fit for ſervice: then go over the eſpaliers in the ſame manner. Look to all new-planted trees, ſee they be firm in their places, and promote their growth by watering. As wall-fruits are coming forward towards the end of this month, they ſhould be well thinned; obſerve which are the moſt promiſing, and the taking off a part of the worſt gives more nouriſhment to the others: this thinning muſt be done with caution, for there are many accidents to which the remainder will be liable: ſnails devour many, they muſt be watched daily at the times of their coming out of their holes and deſtroyed; let the ground about the trees have ſuch a dreſſing as will make them a freſh ſupply of nouriſhment.

In the *Kitchen-garden*. Begin the month with a general weeding among the ſmalleſt kind by hand, for others the hoe is to be uſed. In thoſe in rows, at a due diſtance, uſe the ſpade: follow the weeding by a general watering; hoe in the dryeſt days, weed by hand after a little rain. Dig in either weather. Slip ſome artichokes, and chuſe a moiſt part of the ground for planting them. Sow young ſallading on a ſhady part of the ground open to the north-weſt. Slip ſage and other aromatic kinds, and plant them out on a ſhady border. Sow ſome good ſeed of cos and celicia lettuces. In a fair evening after a ſhower, draw up ſome mould about the ſtems of the cabbages and cauliflower-plants. The celery-plants may be tranſplanted about the beginning of this month. Look after the inſects, which if not deſtroyed before they copulate, will lay the foundation for an unconquerable multitude. Beans and peaſe, which will now be in flower upon warm borders, will require good watering. Plant peaſe, beans, and French-beans. Plant out radiſhes for ſeeds. Let the gardener go over the plantation of early cabbages, and tye them up with ſoft baſs. Beans, peaſe, and French-beans may be planted till near the end of this month, but they will require more watering than thoſe planted earlier: they muſt alſo be duly weeded, and the mould between them muſt be frequently broke. Weeding and watering now become neceſſary to the whole ground, and muſt be continued from time to time with due care: the young crops will require moſt of the former, and the old of the latter. Sow young ſallad herbs; once a week plant out the cabbages and ſavoys for winter uſe: this muſt be done upon part of the ground cleared from other crops. The cucumber and melon plants muſt now be carefully attended; they are apt to hang their leaves and grow faint: this happens either from the too great power of the ſun, or the want of a ſufficient depth of mould; in the firſt caſe the frame muſt be covered with mats in the heat of the day inſtead of glaſſes, and in the other an inch depth of freſh mould muſt be ſpread over the whole bed.

In the *Green-houſe*. About the end of this month bring into the open air thoſe natives of warmer climates which have been ſheltered from winter, and admit more air to thoſe which will not at any time endure the free expoſure. The green-houſe plants are to be removed into proper parts of the garden: but before they are removed they ſhould be cleaned in every part, freed from decayed leaves, and refreſhed by ſome new mould, after ſtirring the ſurface of that in which they grow: theſe being now taken out, the others will have room to be brought to the windows in order to have as much air as poſſible, with any degree of defence.

The *Stove*, towards the end of this month ſhould be refreſhed with airings; at evening the glaſſes muſt be cloſed to keep out the cold that will attend even our warmeſt ſeaſons, and in the middle of very hot days they muſt be ſhaded. Many of the moſt elegant plants in this department will now require tranſplanting: thoſe raiſed from ſeed have been planted in little pots and ſet in the bed; theſe, as they increaſe in bigneſs, will require more earth for their roots. Let the plants in general be carefully looked over and well cleaned; let the mould on the ſurface in all the pots be broke, and refreſhed by a ſmall addition of a compoſt of the like kind, and let the ſeveral plants, according to their nature, have now and then a gentle watering from ſome fine-noſed pot.

MAYWEED, *Cotula*, a genus of plants, ranged by Linnæus among the *ſyngeneſia polygamia ſuperflua*, and of which there are four ſpecies. 1. Mayweed, with many-pointed winged leaves, and no rays to the flowers. 2. Mayweed, with ſpear-ſhaped, narrow, many-pointed leaves embracing the ſtalks. 3. Mayweed, with lyre-ſhaped winged leaves, and radiated flowers. 4. Mayweed, with receptacles ſwollen, and turbinated beneath.

Theſe are all annual plants. The firſt ſpecies grows naturally in Spain and the iſland of Helena. The ſecond and fourth ſpecies are natives of Africa, and the third of Vera Cruz.

Culture of the MAYWEED.

The firſt ſpecies is propagated by ſeeds, which if the plants are permitted to ſcatter, a new ſucceſſion will come up in the ſpring, and will require no other care than keeping them clean from weeds, and thinning them where they grow too cloſe.

The ſecond, third, and fourth ſpecies are raiſed from ſeeds, which ſhould be ſown on a moderate hot-bed in the ſpring: and when the plants are fit to be removed, they may be tranſplanted to a warm border, where they will require no other care but to keep them clean from weeds.

MAYWEED, a ſpecies of Chamomile. See the article CHAMOMILE.

MEADIA, a genus of plants, of which there is only one ſpecies.

This plant grows naturally in Virginia and other parts of North America. It has a perennial root, from which come out ſeveral ſmooth leaves, which are ſix inches long, and two and a half broad, at firſt ſtanding erect, but afterwards they ſpread on the ground, eſpecially if the plants are much expoſed to the ſun; from between theſe leaves ariſe three or four ſtalks, in proportion to the ſtrength of the roots, eight or nine inches high: they are ſmooth, naked, and are terminated by an umbel of flowers, under which is ſituated a many-leaved involucrum; each flower is ſuſtained by a long ſlender foot-ſtalk, which is recurved ſo that the flower hangs downward: it has but one petal, which is deeply cut into five ſpear-ſhaped ſegments, which are reflexed backward; the ſtamina, which are five in number, are ſhort, and ſit in the tube of the flower, having five arrow-pointed ſummits, which are connected together round the ſtyle, forming a ſort of beak. The flowers are purple inclining to a peach-bloſſom colour, and have an oblong germen ſituated in the bottom of the tube, which afterward becomes an oval capſule incloſed by the empalement, with the permanent ſtyle on its apex, which when ripe opens at the top to let out the ſeeds, which are faſtened round the ſtyle. This plant flowers the beginning of May, and the ſeeds ripen in July, ſoon after which the ſtalks and leaves decay, ſo that the roots remain inactive till the following ſpring.

Culture of the MEADIA.

It is propagated by off-ſets, which the roots put out freely when they are in a looſe moiſt ſoil and a ſhady ſituation; the beſt time to remove the roots and take away the off-ſets is in Auguſt, after the leaves and ſtalks are decayed, that they may be fixed well in their new ſituation before the froſt comes on. It may alſo be propagated by ſeeds, which the plants generally produce in plenty: theſe ſhould be ſown in the autumn ſoon after they are ripe, either in a ſhady moiſt border, or in pots which ſhould be placed in the ſhade; in the ſpring the plants will come up, and muſt then be kept clean from weeds, and if the ſeaſon proves dry they muſt be frequently refreſhed with water: nor ſhould they be expoſed to the ſun, for while the plants are young they are very impatient of heat; theſe young plants ſhould not be tranſplanted till the leaves are decayed, then they muſt be carefully taken up and planted in a ſhady border, where the ſoil is looſe and moiſt, at about eight inches diſtance from each other, which will be room enough for them to grow one year, by which time they will be ſtrong enough to produce flowers, ſo may then be tranſplanted into ſome ſhady border in the flower-garden, where they will appear very ornamental during the continuance of their flowers.

MEADOW SWEET, a ſpecies of Spiræa. See the article SPIRÆA.

MEDEOLA, a genus of plants which has no Engliſh name; there are four ſpecies of it. 1. Medeola, with oval, ſpear-ſhaped, alternate leaves, and a climbing ſtalk, commonly called climbing African Aſparagus, with a myrtle leaf. 2. Medeola, with ſpear-ſhaped, alternate leaves, and a climbing ſtalk; or narrow-leaved, climbing African Aſparagus. 3. Medeola, with leaves growing in whorls, and prickly branches. 4. Medeola, with leaves growing in whorls, and ſmooth branches.

The firſt and ſecond ſpecies grow naturally at the Cape of Good Hope; they have tuberoſe roots, compoſed of ſeveral dugs or oblong knobs, which unite together at the top, from which ariſe two or three ſtiff ſtalks, which riſe four or five feet high if they have any ſupport to which they can faſten, otherwiſe they fall to the ground. The leaves of the firſt are oval, ſpear-ſhaped, ending in acute points, and placed alternate: their colour is a light green on the under ſide, and dark on the upper. The leaves of the ſecond are much longer and narrower, in which their difference conſiſts. The flowers come out from the ſides of the ſtalks, ſometimes ſingly, at others there are two upon a ſlender ſhort foot-ſtalk: they have ſix oblong equal petals, of a dull white colour: within theſe ſit ſix ſtamina, which are as long as the petals, terminated by incumbent ſummits; in the center is ſituated a germen with three horns, ſitting upon a ſhort ſtyle, and crowned by three thick recurved ſtigmas: the germen afterward turns to a roundiſh berry with three cells, each containing one heart-ſhaped ſeed.

The third ſort grows naturally in the Weſt-Indies. This is a very low ſhrub, ſeldom riſing more than three feet high in its native ſoil. The ſtalks are herbaceous, and divide upwards into ſeveral branches. The leaves are ſtiff, ending in acute ſpines: theſe ſtand in whorls round the ſtalks, there are eleven or more at each joint. The flowers are produced juſt under the leaves, ſometimes ſingly, at others there are two which come out from the ſame joint: they are of an herbaceous white colour, having ſix oblong pointed petals, with ſix ſtamina not ſo long as the petals, and a roundiſh germen, which afterwards turns to an oval berry with three cells, each having one heart-ſhaped ſeed.

The fourth ſpecies is a native of North America. This hath a ſmall ſcaly root, from which ariſes a ſingle ſtalk about eight inches high. The leaves grow at a ſmall diſtance from the ground in whorls, and at the top there are two leaves ſtanding oppoſite: between theſe come out three ſlender foot-ſtalks, which turn downward, each ſuſtaining one ſmall, pale, herbaceous flower, with a purple pointal.

Culture of the MEDEOLA.

Both the firſt ſpecies propagate freely by off-ſets from the roots, ſo that when they are once obtained, there will be no neceſſity of ſowing their ſeeds, which commonly lie a year in the ground; nor will the plants be ſtrong enough to flower in leſs than two years more, whereas the off-ſets will flower the following ſpring. The time for tranſplanting and parting of the roots is in July, when their ſtalks are entirely decayed, for they begin to ſhoot towards the end of Auguſt, and keep growing all the winter. Theſe roots ſhould be planted in pots, and may remain in the open air till there is danger of froſts, when they muſt be removed into ſhelter, for they are too tender to live through the winter in the open air: but if they are placed in a warm green-houſe, they will thrive and flower very well, but they ſeldom produce fruit unleſs they have ſome heat in winter; therefore where that is deſired, the plants ſhould be placed in a ſtove and kept to a moderate degree of warmth.

The third ſpecies is a tender plant, and will not thrive in this country unleſs it is placed in a bark-ſtove; it is propagated by ſeeds, which ſhould be ſown in pots, and plunged into a bark-bed, where they may remain all the ſummer, for the plants ſeldom come up the firſt year. In autumn they ſhould be removed into a freſh hot-bed, which will bring up the plants: but as theſe are very ſlow in their growth, they will not be fit to tranſplant till the following ſpring, when they may be each planted in a ſeparate pot filled with light ſandy earth, and plunged into a freſh hot-bed, ſhading them from the ſun till they are new rooted: after which they muſt be treated in the ſame way as other tender plants from the ſame country.

The fourth ſpecies is hardy enough to live in the open air, but does not propagate faſt here, as it produces no ſeeds, ſo can only be increaſed by off-ſets.

MEDLAR, *Meſpilus*, a genus of plants, ranged by Linnæus among the *icoſandria pentagynia*, of which there are twenty-two ſpecies. 1. Great Medlar, with a bay-tree leaf. 2. Medlar, with a bay-tree leaf, which is not ſawed. 3. Medlar, with a cut, ſmallage leaf, commonly called L'Azarole. 4. Wild Medlar, with a ſmallage leaf and prickly branches; or common Hawthorn. 5. Medlar, with a cut, ſmallage leaf, and a yellowiſh white fruit. 6. Prickly Medlar, with ſpear-ſhaped, oval, crenated leaves, called Pyracantha. 7. Large prickly Medlar of Virginia, called Cockſpur Hawthorn. 8. Medlar without thorns, and oval, ſawed, ſmooth leaves, commonly called Cockſpur Haw without thorns. 9. Medlar, with ſpear-ſhaped, oval, crenated, ſmooth leaves, and prickly branches, called Virginia L'Azerole. 10. Medlar, with ſpear-ſhaped, ſawed leaves, very ſtrong ſpines, and flowers growing in round bunches. 11. Medlar, with heart-ſhaped, oval, acute-pointed leaves, which are ſharply ſawed, and prickly branches. 12. Medlar, with oblong, oval, acute-pointed, ſmooth leaves, which are angularly ſawed, and prickly branches, called Maple-leaved Hawthorn. 13. Medlar, with oval, ſmooth leaves, which are angularly ſawed, and ſmooth branches. 14. Medlar without thorns, and oval, ſpear-ſhaped, veined, ſawed leaves, which are hairy on their under-ſide. 15. Medlar, with oval, obtuſe, ſmooth leaves, which are ſawed toward their points, and an oval fruit, commonly called Pear-ſhaped Haw. 16. Medlar, without ſpines, and obverſe, oval leaves, which are ſlightly indented toward their ends, and green on both ſides. 17. Medlar, with ſpear-ſhaped, oval leaves, which are ſawed, and hairy on their under-ſide, flowers growing ſingly with leafy empalements, and very long ſpines, commonly called Lord Iſlay's Haw. 18. Medlar without thorns, having oval, ſawed leaves, and hairy ſtalks, commonly called Amelanchier. 19. Medlar, with oval, oblong, ſmooth, ſawed leaves, and branches without thorns. 20. Medlar, with oval, intire leaves, commonly called Dwarf Quince. 21. Medlar without thorns, having ſmooth, oval, ſawed leaves, headed flowers, and linear bracteæ which fall off. 22. Medlar, with oval, thick, intire leaves, which are woolly on their under-ſide, and flowers growing in umbels from the wings of the ſtalks; or Dwarf Cherry of mount Ida.

The firſt ſpecies grows naturally in Sicily, where it becomes a large tree. It riſes with a ſtraiter ſtem, and the branches grow more upright than thoſe of the Dutch Medlar. The leaves are narrower, and not ſawed on their edges. The flowers are ſmaller, and the fruit is ſhaped like a pear.

The ſecond ſpecies is generally called the Dutch Medlar. This never riſes with an upright ſtalk, but ſends out crooked, deformed branches, at a ſmall height from the ground. The leaves of this are very large, entire, and downy on their under-ſide. The flowers are very large, as are alſo the fruit, which are rounder and approach nearer to the ſhape of an apple.

The third ſpecies grows naturally in Sicily and the iſlands of the Archipelago; of this there are ſeveral varieties, which differ in the form and ſize of their leaves, ſome being cut into five, others into ſix or ſeven lobes, which are ſometimes ſawed on their edges, and others are entire: ſome of them have oval, large fruit, and others are ſmaller, rounder, and of different colours, ſome almoſt white, others yellow, and ſome are red.

The fourth ſpecies is the common Hawthorn, which is generally cultivated in England for fences, and is one of the beſt and moſt durable plants for that purpoſe we have in this country. There are ſeveral varieties of this, which differ in the ſize of their leaves, the manner in which they are cut, and the ſize and ſhape of their fruit: but thoſe with the ſmalleſt leaves are the beſt for cloſe hedges, becauſe their branches grow cloſer together.

There is alſo a variety of this with double flowers, which is an ornamental ſhrub for gardens, for which purpoſe it is propagated in the nurſery.

The Glaſtenbury Thorn is alſo ſuppoſed to be only a variety of the common Hawthorn: it differs from it in putting out its leaves very early in the ſpring, and in flowering twice a year; for in mild ſeaſons it often flowers in November and December, and again at the uſual time with the common ſort.

The fifth ſpecies has much broader leaves than the common Hawthorn, which are divided into three obtuſe lobes, which are ſmooth, ſlightly ſawed on their edges, and of a lucid green on their upper ſurface. The flowers are larger than thoſe of the common ſort, and each foot-ſtalk ſuſtains three of them; the fruit is of the ſhape and ſize of the common Haw, but is of a yellowiſh white colour.

The ſixth ſpecies grows naturally in the hedges in the ſouth of France and Italy: it is commonly known by the title of Pyracantha, or ever-green Hawthorn; this does not riſe to a tree, for the ſtalks and branches are too ſlender and weak to ſtand without ſupport, ſo the plants are generally planted againſt walls or buildings to cover them. The flowers come from the ſides of the branches in large umbels, they are ſmall and of a dingy white: they are ſucceeded by roundiſh, umbilicated berries of a deep red colour, which ripen in the winter, and being intermixed with the ever-green leaves, make a fine appearance at that ſeaſon of the year.

The ſeventh ſpecies is a native of North America: this is called Cockſpur Hawthorn, from the ſhape of its thorns, which are very ſtrong, and bent downwards like a cockſpur. This has a ſtrong ſtem, which riſes ten or twelve feet high, dividing into ſeveral branches. The leaves are oval, ſawed on their edges, cut into acute angles, and of a light green on their upper ſide, but pale on their under. The flowers come out in large umbels from the ſides, and at the extremities of the branches: they are much larger than thoſe of the common Hawthorn, and are ſucceeded by fruit, which when ripe is of a beautiful red colour.

The eighth ſpecies differs from the ſeventh in having no thorns on the branches: the leaves are a little deeper ſawed on their edges, and not ſo deeply veined; it is a native of the ſame country, and grows to as great a ſize.

The ninth ſpecies is a native of North America, where it is a tree of a middling ſize: it has a few ſtrong ſtrong ſpines, thinly placed on the young branches. The leaves are ſpear-ſhaped, of a lucid green, and indented on their edges. The flowers are as large as thoſe of the former ſorts, but the umbels are leſs: they are ſucceeded by fruit as large as that of the Cockſpur Hawthorn, but a little oval-ſhaped, of a red colour, and ripens later in the year.

The tenth ſpecies does not riſe ſo high as either of the former. The branches are armed with very ſtrong thorns, and ſhoot horizontally, bending downward, ſo that they are often interwoven one in another. The leaves are ſmooth, ſpear-ſhaped, ſawed on their edges, and of a lucid green. The flowers are placed on the ſides of the branches. The fruit is large, roundiſh, and of a deep red colour when ripe; it is a native of America.

The eleventh ſpecies is alſo a native of North America. It riſes with a ſtrong ſtem about five feet high, dividing into many ſpreading branches, which are armed with long ſlender thorns. The leaves are oval, and differ in their form, ſome are indented at their foot-ſtalks in ſhape of a heart, and others are entire at that part: ſome end in very acute points, and others are obtuſe; they are ſharply ſawed on their edges, of a yellowiſh green on their upper ſide, and ſtanding upon ſlender foot-ſtalks. The flowers appear on the ſides and at the ends of the branches in bunches; the flowers and fruit are of the ſize and ſhape of the common Hawthorn.

The twelfth ſpecies is a native of Virginia, where it riſes to a tree of a middling ſize. The branches are armed with a few ſlender thorns. The leaves are oval, oblong, angular, of a lucid green on their upper ſide, and pale on their under: ſome are cut ſo deep on their ſides as almoſt to divide them into lobes, but others are more entire. The flowers, which are very elegant, grow in large umbels at the ends of the branches; they are ſucceeded by fruit of a beautiful red colour.

The thirteenth ſpecies riſes with a ſtrong ſtem to a middling height, dividing into many branches, which have no thorns. The leaves are oval, ſharply ſawed on their edges, cut into many acute angles, ſmooth, and of a light yellowiſh green. The flowers grow at the ends of the branches in cloſe umbels. The fruit is larger than that of the common Hawthorn, but of the ſame colour.

The fourteenth ſpecies has a ſtrong upright ſtem, ſending out many branches which have no thorns. The leaves are oval, ſpear-ſhaped, and ſawed on their edges. The flowers are placed in large umbels at the ends of the branches, they are ſucceeded by a red fruit.

The fifteenth ſpecies is a tree of a middling growth. The branches are covered with a brown bark, and have no thorns. The leaves are oval, ſmooth, and of a yellowiſh green. The flowers are produced at the ends of the branches in ſmall bunches. The fruit is large, in ſhape ſomewhat reſembling an egg, and of an herbaceous yellow colour when ripe.

The ſixteenth ſpecies riſes about the height of the common Hawthorn. The branches are without ſpines. The leaves are oval, rounded, ſawed, and of a bright green on both ſides. The flowers are produced at the ends of the branches: theſe and the fruit are like thoſe of the common Hawthorn. This and the three preceding ſorts are all natives of North America.

The ſeventeenth ſpecies is a native of Virginia. It ſeldom exceeds the height of ſeven feet, but ſends out a number of ſlender branches, armed with very long ſharp thorns. The leaves are ſmall and ſawed on their edges, having ſhort foot ſtalks. The flowers are placed between the leaves at the ends of the branches. The fruit is ſmall, and when ripe of an herbaceous yellow colour.

The eighteenth ſpecies is a native of ſeveral parts of Europe. It riſes with a number of ſlender ſtalks about three feet high, having many ſide branches without thorns. The leaves are oval, ſlightly ſawed on their edges, woolly on their under-ſide, but ſmooth and of a bright green on their upper. The flowers are ſituated at the ends of the ſhoots in bunches. The fruit is ſmall, and black when ripe.

The nineteenth ſpecies is a native of Canada. It is a low ſhrub which divides into ſeveral branches. The leaves grow upon long ſlender foot-ſtalks, they are ſmooth on both ſides, and a little ſawed on their edges. The flowers come out in ſmall bunches at the ends of the branches, and are ſucceeded by a ſmall purple fruit.

The twentieth ſpecies riſes with a ſmooth ſhrubby ſtalk about four feet high, dividing into a few ſmall branches. The leaves are oval, intire, and have very ſhort foot-ſtalks. The flowers grow two, and ſometimes three together on the ſides of the ſtalks; they are ſmall, of a purpliſh colour, and are ſucceeded by a roundiſh fruit, of a beautiful bright red when ripe. It grows naturally in the colder parts of Europe.

The twenty-firſt ſpecies riſes with a ſmooth ſtalk about four or five feet high, ſending out many ſlender branches. The leaves are oval, ſmooth, ſawed on their edges, and of a yellowiſh green. The flowers are ſituated at the wings of the ſtalk, and are four or five joined together in a cloſe head; they are ſucceeded by a ſmall red fruit. It is a native of the northern parts of Europe.

The twenty-ſecond ſpecies grows naturally in Crete. It riſes with a ſmooth ſtalk eight or ten feet high, dividing into many ſmooth branches. The leaves are oval, of a dark green on their upper ſide, downy on their under, and ſtanding upon ſhort foot-ſtalks. The flowers are purple, and grow from the ſide of the ſtalk. The fruit is large, round, and of a fine red colour.

Culture of the Medlar.

The ſecond ſpecies is that chiefly cultivated in orchards for the ſake of its fruit; it is propagated by budding or grafting it upon the Hawthorn or the Pear-ſtock, upon either of which it takes very well, and may afterwards be tranſplanted into the fruit-garden either as ſtandards, or trained up againſt an eſpalier: if the latter the fruit will be much larger, but great care muſt be taken in the pruning not to ſhorten the bearing branches, for the fruit is nearly all produced at the extremities of theſe.

The Medlar will ſucceed on almoſt any ſoil, but where it is moiſt and ſtrong the fruit will grow larger, and on a dry one it will, though ſmaller, be much better taſted; it ſhould be ſuffered to remain on the branches till October, at which time it will begin to fall: it ſhould then be gathered in the middle of a dry day, and laid up in a dry place till ſoft and beginning to decay, which is uſually about a month after it is gathered: at this time they are fit for eating, for till then they are too harſh for the palate.

All the other ſpecies are hardy enough to live in the open air of this country. The larger growing kinds appear very elegant in parks; they are propagated by ſeeds, which ſhould be ſown in autumn ſoon after they are ripe. The following ſpring the plants will come up, when they muſt be kept clean from weeds, and in very dry weather ſupplied with water. In two years time they ſhould be tranſplanted where they are deſigned to remain. If they are intended for clumps in parks, the ground ſhould be well trenched, and cleanſed from the roots of all bad weeds, the places muſt alſo be firmly fenced to ſecure them from cattle. The beſt time for tranſplanting them is in autumn, when their leaves fall off; they ſhould be conſtantly kept clean from weeds, and if the ground between the plants is dug every winter for the firſt ſeven years, it will greatly encourage their growth.

The five laſt mentioned ſpecies are only proper for gardens, where, when mixed with other flowering ſhrubs, they make a beautiful variety. They ſhould always be propagated by ſeeds, or by laying down the young branches, which, if carefully laid, will take root in one year, and thus they will ſucceed better than by budding or grafting them upon the ſtocks of the White Thorn, which is the uſual method of propagating them.

MELIA, *Bead-Tree*, a genus of plants, ranged by Linnæus among the *decandria monogynia*, of which there are only two ſpecies. 1. Melia, with double pinnated leaves. 2. Melia, with winged leaves.

The firſt ſpecies is a native of Ceylon, and other parts of the eaſt. It is a tree of conſiderable bigneſs. The root ſpreads far; the trunk riſes upright and thick, and at ſome height ſpreads into many branches. The bark is brown, but on the young twigs green. The leaves are very numerous and large: they are placed in an irregular pinnated manner: ſome on ſimple and ſome on divided ribs; and each pinna, or particular leaf, is oblong, moderately broad, ſharp-pointed and ſerrated. Their colour is a very bright green on the upper ſide, but on the under paler. The flowers grow at the extremities of the branches in large cluſters: they are ſeparately ſmall, and they are placed on long and ſlender foot-ſtalks; their colour is a faint purple, paler toward the edges, and ſomewhat deeper in the middle. The fruit, which follows, is of a rounded form, and ſoft on the outſide: it contains a ſtone of a roundiſh ſhape, but furrowed in five places, and divided within into as many cells, in each of which is contained an oblong ſeed: the cup in which it ſtands is ſmall, formed of a ſingle piece, and is divided at the edge into five little upright ſegments. The body of the flower is compoſed of five petals, but one is frequently abortive: theſe are oblong, narrow, and wide expanded, and in their midſt riſes a nectarium of a peculiar ſhape; it is long, upright, tubular, and formed of a ſingle piece, divided by ten ſlight indentings at the edge.

The ſecond ſpecies is a native of India, where it becomes a large tree. The ſtem is thick, the wood of a pale yellow, and the bark of a dark purple colour. The branches extend wide on every ſide. The leaves are winged, compoſed of five or ſix pair of oblong, acute-pointed lobes, terminated by an odd one, and have a ſtrong diſagreeable odour. The flowers are produced in long branching panicles, which proceed from the ſides of the branches; they are ſmall, white, and cut into five acute ſegments: theſe are ſucceeded by oval fruit the ſize of ſmall olives, which when ripe are yellow; the pulp which ſurrounds the nut is oily, acrid, and bitter: the nut is white.

Culture of the MELIA.

The firſt ſpecies is propagated by ſeeds, which it ſeldom produces in this country: therefore they muſt be obtained from its native place; theſe ſhould be ſown in pots filled with good, freſh light earth, and plunged into a hot-bed of tanners-bark. When the plants are come up let them be frequently watered and have a large quantity of free air, by raiſing the glaſſes every day. In June let them be expoſed to the open air, and removed in October under a hot-bed frame. In March following you may ſhake the plants out of the ſeed-pots, and divide them, by planting each into a ſeparate ſmall pot filled with light, freſh earth, and plunged into a moderate hot-bed. When the weather is good let them have air as before. During three or four winters, while the plants are young, they muſt be ſheltered, but when they are grown pretty large and woody, they will endure to be planted in the open air.

The ſecond ſpecies may be propagated by ſeed, in the ſame manner with the firſt ſort, but being much tenderer the plants muſt be kept conſtantly in the tan-bed.

MELON, *Melo*, a ſpecies of the Cucumber.

The Melons which beſt deſerve culture are, the Cantaleupe, the Romana, the Succado, the Zatte, the ſmall Portugal, and the black Galloway: for our common ſorts, and thoſe which moſt of the trading gardeners around this metropolis raiſe for the markets, where their ſize is chiefly regarded, are not worth the trouble and expence beſtowed upon them, otherwiſe than as they bring in a profit to the cultivator.

The Cantaleupe, as it is called, by way of pre-eminence, particularly by the Dutch, who cultivate very few other ſorts, and never ſubjoin the word Melon when they ſpeak of this, though they apply that diſtinctive appellation to every other kind, is held in the greateſt eſteem by all the curious in Europe. It derives its name from a place, where the pope has a country ſeat, about fourteen miles from Rome, where it has long been cultivated: but it was firſt brought thither from that part of Armenia which borders on Perſia, where this fruit grows naturally in vaſt abundance. Its outer-coat is very rough, full of knots and wart-like protuberances; and its fleſh, which is generally of an orange colour, though it is green in ſome, but theſe are not ſo good, is ſingularly delicious, when in perfection, and remarkable for the ſafety with which it may be eaten; for it does not offend even the moſt tender ſtomachs.

The Romana is a good Melon, when it is well conditioned, and produced by a perfectly healthy plant, in a dry ſeaſon. It may be ripened ſooner than the Cantaleupe, and therefore merits the attention of thoſe who are fond of having early Melons.

The Succado is alſo a very good ſort, and will yield early fruit: but neither it, nor the Romana, can be compared to the Cantaleupe, when this laſt is in ſeaſon.

The Zatte Melon is likewiſe well taſted; but its fruit is ſo very ſmall (ſeldom exceeding the ſize of an orange), and the fleſh in it ſo little, that it is ſcarcely worth cultivation. It is ſomewhat flat at both ends, and its coat is warted like that of the Cantaleupe.

The ſmall Portugal Melon, which ſome call the Dormer Melon, may alſo be cultivated for an early crop. It is a pretty good fruit, and grows plentifully; for which reaſon people who chooſe quantity rather than quality, and many whoſe palates are not nice, give it a ſort of preference to moſt other ſorts: but it falls greatly ſhort of the Cantaleupe, in point of flavour.

The black Galloway, which was brought from Portugal, many years ago, by Lord Galloway, is the beſt of all Melons for an early crop; for it will ripen in a ſhorter time from the ſetting of it, than any other ſort; and its fruit is by no means bad when it is ſuffered to ripen naturally. The ſeeds of the right black Galloway are, indeed, not eaſily met with now in this country; becauſe it has degenerated by growing among other ſorts, the male duſt of whoſe bloſſoms has been wafted to, and has impregnated, the flowers: for, to preſerve any particular ſort of Melon in perfection, no other plant of a different kind, though of the ſame genus, no cucumber, no gourd, nor any ſimilar growth, ſhould be permitted to blow near it.

To the want of care in this important, though too generally unheeded, caution, is owing the complaint of many lovers of this fruit, who, not knowing the true cauſe, have imputed the gradual diminution of the goodneſs of their Melons to their having been too long cultivated from ſeeds ſaved in the ſame garden, and have therefore held it to be abſolutely neceſſary to procure a frequent change of ſeeds from diſtant parts. That a change of ſeeds now and then is beneficial, and even adviſable, is readily allowed in regard to this, as well as for all other vegetables; but the great difficulty is, to get them from people who have ſaved them with due care; for all hired, or otherwiſe mercenary, gardeners, are apt to be very negligent in this reſpect. Nor ſhould the ſeeds brought from abroad, either by thoſe who import them for ſale, or by gentlemen, be abſolutely depended upon; for in Italy, Spain, Portugal, and many parts of France, the gardeners are very careleſs in the choice of all their ſeeds, but of the Melons they are remarkably ſo; and as for thoſe which come from Conſtantinople, Aleppo, and other parts of Turky, it is rare to ſee one tolerable Melon produced from thoſe ſeeds.

Melon ſeeds ſhould be at leaſt three years old, and not more than ſix, or at moſt ſeven, when they are ſown: for though they will grow at the age of ten or twelve years, and at leſs than three, yet the fruit produced by them will, like that of light ſeeds which ſwim upon the water when taken out of the pulp, not be near ſo thick fleſhed, ſo firm, ſo moiſt, or ſo well taſted, as what is raiſed from heavy ſeeds kept to a proper time, even though they be taken out of the ſame Melons.

Culture of the MELON.

The culture of all ſorts of Melons, of which there are many varieties beſides the above-mentioned, though not of value enough to be particulariſed here, is exactly the ſame. The two firſt ſowings of them, that is to ſay, thoſe made in March, ſhould be under frames, and therefore theſe may be placed at the upper ſide of a cucumber-bed, if there be one in readineſs; otherwiſe a hot-bed muſt be made on purpoſe for them, with new horſe-dung, in the manner before directed for cucumbers, like which they are to be raiſed and managed in all reſpects, till they are planted out where they are to remain. The third ſowing, of which the plants are generally reared under bell or hand-glaſſes, or under frames covered with oiled paper, ſhould not be earlier than the tenth or twelfth of April, leſt theſe plants, if they thrive well, ſhould extend their ſhoots to the ſides of the glaſſes before it will be ſafe to let them run out, on account of the ſharp morning froſts which are frequent in this country even in the middle of May: nor muſt they, on the other hand, be cramped in the glaſſes, becauſe they would then be in equal danger from the heat of the ſun in the day-time. If they do grow ſo as to exceed the limits of their glaſſes ſooner than it may be ſafe to expoſe them to the air, the projecting ends of their vines muſt, in that caſe, be ſheltered with mats, to defend them from the cold. For theſe reaſons it is moſt adviſable to ſet the ſeeds of ſuch plants as are to be reared under hand-glaſſes, a little later than thoſe which are intended for the much more ſpacious coverings of oiled paper: and likewiſe for the ſame reaſons, it is beſt in this climate, not to attempt to have Melons ripe earlier than the middle of June, from which time they may be had in plenty till the end of September, if they are rightly managed.

When the beds, or, as the gardeners term them, the ridges, in which theſe plants are to be ſet to remain, are of a proper warmth, a covering of two inches thick of mould will be ſufficient to begin with, except in the middle of each light, where a hill of it ſhould be raiſed eighteen inches high, or more, terminating in a flat cone, in the top of which the plants are to be placed. In two or three days, this will be ſufficiently warmed to receive the plants, which always ſucceed beſt when they are tranſplanted young; and the moſt proper time for removing them is the evening, when a little wind is ſtirring. They ſhould be carefully taken up with a trowel, ſo as to preſerve all their fibres, and as much earth as poſſible about them; for theſe plants are much tenderer than thoſe of cucumbers. The Cantaleupe Melon is particularly ſo: for it will be long before that recovers itſelf, after being tranſplanted, and if this is not done ſoon after it has put out its third, or what the gardeners call its rough leaf. If this happens before the beds are ready, the beſt way is, particularly for the Cantaleupe, which requires the niceſt management, to take up the plants, as ſoon as they are fit for removing, to put each of them into a ſeparate ſmall garden pot, and then to plunge theſe into the hot-bed where they were raiſed, or into a cucumber-bed, if there be room, in order that they may be brought forward; and when the bed or ridge where they are to remain is ready, they may be turned out of the pots, with all the earth about their roots, ſo as not to receive any check by the tranſplanting. This may be the more eaſily done, as only one Melon plant ſhould be ſuffered to grow in each light, and there will not be any danger of hurting their roots when they are removed in this way. When they are well placed on the top of the little mounts, or hillocks, before-mentioned, they ſhould be watered gently, and this ſhould be repeated once or twice, till they have taken good root, after which more water will ſeldom be wanted, or adviſable; becauſe too much wet makes them canker at the root, and then they never produce good fruit. When the plants are well fixed in this new bed, a greater quantity of earth ſhould be laid on it, beginning at the hillocks, that their roots may be enabled to ſtrike out horizontally; and as this earth is added from time to time, it ſhould be preſſed or trodden down as cloſe as poſſible, till it is at laſt raiſed at leaſt a foot and a half thick upon the dung all over the bed. The frames ſhould alſo be raiſed in proportion, that their glaſſes may not be ſo near the plants, as to make the ſun ſcorch them: but in this raiſing of the frames, great care muſt be taken to ſtop every crevice all around, ſo that no cold air may be able to penetrate through them.

The earth, which the Dutch and German gardeners, who are very exact in that reſpect, lay upon theſe beds, conſiſts of one third of hazel loam, one third of the ſcouring of ponds or ditches, and one third of very rotten dung. They prepare this compoſt at leaſt one year, but oftener two years, before they uſe it; frequently turning it during that time, the more thoroughly to blend and ſweeten it: but Mr. Miller has found, by experience, that Melons ſucceed beſt in this country, when they are planted in two thirds of freſh gentle loam, and one third of rotten neats dung, well mixed, and frequently turned over during one year before they are wanted, ſo as to enable them to enjoy all the benefit of a winter's froſt and ſummer's heat; and of this a ſufficient heap ſhould always be kept in readineſs, under a ſhed, well ſheltered from heavy rains, which would carry off its goodneſs.

When the plants have four leaves, and conſequently a joint, their tops above that joint ſhould be pinched off with the finger and thumb, to make them put out lateral branches, for theſe are to produce the fruit; and when there are two or three of theſe branches, their extremities muſt alſo be pinched off, as ſoon as they have got two or three joints, to force out more, and theſe again muſt be treated in the ſame manner, that there may be runners enough, as the gardeners call them, to cover the bed. Care muſt be taken not to bruiſe the plants, when the tips of their ſhoots are thus pinched off, nor muſt they be cut with a knife, becauſe the wound will not heal ſoon in either of theſe caſes. Neither ſhould a greater number of lateral ſhoots than is neceſſary to cover the bed properly, be forced out by cropping off their ends, leſt more fruit ſhould be produced than the plant can poſſibly nouriſh. The farther management of theſe plants is the ſame as that of cucumbers, only it is to be obſerved, that Melons require a greater ſhare of air than cucumbers, and very little water; and that when they are watered, it ſhould always be at a diſtance from their ſtems.

If the plants raiſed in frames ſucceed well, their vines will extend over the bed, and reach to the frames, in about ſix weeks, at the end of which the alleys between the beds ſhould be dug up; or, if there is but one bed, a trench about four feet wide ſhould be dug on each ſide of it, as deep as the bottom of the bed. A ſufficient quantity of hot dung ſhould then be trodden down cloſely to it, till this dung is as high as that of the bed, and this additional breadth ſhould be covered with the ſame ſort of earth as was uſed for the bed. This earth ſhould alſo be trodden down as cloſe as poſſible, and the whole bed ſhould by theſe means be enlarged to the breadth of twelve feet; for the roots of the plants will extend themſelves to very near that diſtance: but if they ſhould reach farther than they are covered, and their extremities be conſequently dried by the ſun and air, the plants themſelves will gradually languiſh and decay, or at beſt produce but meagre, meally, and ill-flavoured fruit; whereas thoſe which have a ſufficient breadth and depth of well trodden earth for their roots to run in, will remain in vigour till the froſt deſtroys them. The languiſhing of the plants, for want of ſufficient room to extend their roots, frequently before the fruit is full grown, and even ſometimes before it is well formed, may ſoon be diſcovered by the drooping of their leaves in the middle of the day, and a then ſpeedy total decay of many of thoſe leaves. It is owing to their not having enlarged the beds, as above directed, or even made them at all wider than they were at firſt, or increaſed the original depth of the mould upon them, which perhaps did not exceed the common allowance of about three inches, that many people have ſeen their plants of Cantaleupe Melons pine away, and periſh, before they had ripened a ſingle fruit; and then have imputed to their tenderneſs, which they think too great for this climate, a miſcarriage which was entirely owing to their not underſtanding the right method of cultivating them.

When the vines have extended ſo far as to fill the frames, and conſequently to want more room, the frames ſhould be raiſed up about three inches above the ſurface of the bed, and ſet upon a few bricks, at that height, in order that the ſhoots may have room to run out under them: for if the plants are vigorous, theſe branches will reach to the diſtance of ſix or ſeven feet every way from their ſtem. It therefore is evidently beſt, not to put more than one plant under each light; and the more ſo as its fruit will ſeldom ſet well if the vines are crowded, but will drop off when about the bigneſs of an egg. The addition of the warm dung before-mentioned, on each ſide of the bed, will indeed, by reviving the heat of the dung in the bed, be of great ſervice to the ſetting of the fruit, eſpecially if the ſeaſon ſhould prove cold, as it ſometimes is with us till the very end of May; and this is ſurely no ſmall advantage accruing from that method. To ſecond it properly, the frames for Melons ſhould not be made ſo ſmall as is the general cuſtom; for the wider they are, the better the plants will thrive, and the greater quantity of fruit they will produce.

If the weather ſhould become cold after the plants have extended themſelves from under the frames, it will be right to cover the extremities of their vines every night with mats, during the continuance of the cold; for if they are injured, the growth of the fruit will be retarded, and the plants themſelves may be hurt eſſentially. Care ſhould alſo be taken after this enlargement of the beds, that what water is given to the plants be poured only in the alleys between the beds, or towards the outſide of the ſpace added to them; for their roots will now have extended ſo far as to reap the benefit of any ſuch watering, and their ſtems will continue the ſounder for being kept dry.

This watering ſhould be pretty plentiful when it is given; but it ſhould not be repeated above once a week, even in the drieſt weather: and, on the other hand, the plants ſhould be aired as much as poſſible when the ſeaſon is warm.

The plants of Melons intended to be reared under bell or hand glaſſes, ſhould be raiſed in the ſame manner as thoſe before-mentioned; and the beds, or ridges, for them ſhould be made by the latter end of April, if the ſeaſon is forward. A ſufficient quantity of hot dung ſhould therefore be provided for this purpoſe, ſo as to allow eight or nine good wheel-barrow loads of it to each glaſs. When there is but one bed, and that is to be extended in length, the trench for it ſhould be dug four feet wide, and its length ſhould be proportioned to the intended number of glaſſes, which ſhould ſtand at leaſt four feet aſunder: for if the plants are too cloſe to each other, their vines will intermix and entangle, and crowd the bed ſo as to prevent the ſetting of the fruit. This trench ſhould be ſo ſituated, that there may be room for widening the bed two or three feet on each ſide. Its depth muſt depend on the nature of the ſoil, as was before obſerved: but if the ground is ſo dry as to obviate all danger of the bed's being hurt by wet, it cannot well be dug too deep. After the dung is ſpread, trodden down, and flatted in the trench, as already directed, a hill of earth (ſuch as was before adviſed will be the beſt) ſhould be raiſed eighteen inches high, with a flat head, in the middle of each ſpot where a plant is to be ſet; but the reſt of the bed need not yet be covered above four inches thick; for that will be ſufficient to prevent the evaporation of the warmth of the dung. The glaſſes ſhould then be ſet down cloſe, over the hills, that theſe may be warmed ſo as to be fit to receive the plants, which they will be in two or three days, if the bed works kindly, and then the plants ſhould be ſet in the top of the hills, in the manner before directed. If they are taken out of pots, with all the earth about their roots, only one ſhould be ſet under each glaſs, becauſe there will not then be any danger of their dying; but if they are tranſplanted directly from the ſeedling-bed, it will be right to plant two upon each hill, and afterwards to remove one of them, if they both grow. Theſe plants muſt be watered when they are firſt ſet, to bring the earth the cloſer to their roots. They muſt alſo be ſhaded every day, till they have taken new root; and if the nights prove cold, the glaſſes ſhould be covered with mats, the better to preſerve the warmth of the bed.

When ſeveral of theſe beds are made, they ſhould ſtand eight feet aſunder at firſt, that there may be between them a proper ſpace, which is afterwards to be filled up, in order to enlarge them ſo that the roots of the vines may have room to extend themſelves every way, for the reaſons before aſſigned.

When theſe plants have taken good root, their tops muſt be pinched off as before directed for thoſe in the frames; and the glaſſes ſhould be raiſed up in the day time, in warm weather, on the ſide oppoſite to the wind, to let in freſh air to the plants, which will otherwiſe be drawn up weak and ſickly: a ſtate which all poſſible care ſhould be taken to prevent, becauſe their runners cannot ſupply the fruit with due nouriſhment, if they themſelves have not proper ſtrength.

If the weather be favourable, the glaſſes ſhould be raiſed two or three inches high from the ſurface of the beds, and ſet upon three bricks, as ſoon as the plants are grown long enough to touch their ſides, in order to give the vines room to run out from under them; but it is eſſential to obſerve, that, when this is done, the whole bed ſhould be covered with earth to the depth of eighteen inches; that this earth ſhould be trodden down as cloſe as poſſible; and that, if the nights ſhould prove froſty, a covering of mats ſhould be carefully ſpread over the beds, to guard the tender ſhoots of the plants from the cold. It is alſo to be obſerved, with regard to the Cantaleupe Melon in particular, that, as the vines of this ſort cannot endure wet, the beds where it grows ſhould be arched over with hoops, to ſupport the mats, and that theſe ſhould be held in readineſs to be uſed at a moment's warning, either againſt cold or rain: for this is the only way to have theſe Melons ſucceed in ſo variable a climate as ours.

If the weather ſhould prove cold after the bed is covered with the proper thickneſs of earth, well trodden down, it will be adviſable to dig a trench along each ſide of it, or, if there are more beds than one, to dig out their intermediate ſpace, then to fill this, or the trenches, with hot dung, up to the height of the adjoining bed, and to cover this dung with an equal depth of well trodden down earth, as before directed. This new dung will revive the warmth of the former beds, and ſoon make the plants ſhew their fruit. The watering of them, pinching off their tops, and, in ſhort, every other part of their management, muſt be the ſame as before directed for thoſe under frames: but a farther care requiſite here, is, to cover them with mats in all hard rains and cold nights. If all this is rightly performed, theſe plants will remain vigorous until the cold in autumn deſtroys them.

The oiled paper coverings are a late invention; but they have been found to ſucceed admirably well when rightly managed. The chief thing to be attended to when they are uſed, is, not to keep them down too cloſe over the plants; for then the Melon vines will waſte themſelves by running out in length, and will be ſo weak as rarely to ſet their fruit in any plenty. The beſt way therefore is, where theſe coverings are intended to be uſed, to raiſe the plants under bell or hand-glaſſes, as before directed, till they are grown large enough to be releaſed from thoſe glaſſes; and then, inſtead of mats, to uſe this oiled paper covering, which, if it be prudently managed, will anſwer every end that can be deſired.

To make this covering, a number of ſheets of ſtrong, but not too dark-coloured, paper ſhould be paſted together ſo as to over-ſpread the frame intended to be uſed; and theſe ſhould then be faſtened to the frame, and rubbed well over with linſeed oil, which will dry ſoon; for all the ſtench ſhould be gone off before it is put over the plants, becauſe they will otherwiſe be hurt thereby. Pan-tile laths put together in the ſhape of the ridge of a houſe, with hinges to each ſlope, whereby any of the pannels may be raiſed at pleaſure, to let air in to the plants, are the beſt materials, and the beſt form, for theſe frames; for when they are made with broad hoops, like the tilts of waggons, they are cumberſome to move, and no air can be admitted to the plants, but by raiſing up one whole ſide of the frame; which is very inconvenient.

When the vines begin to put forth their fruit, which they will do in plenty ſoon after the bearing runners ſhall have been produced by nipping off, in the manner before adviſed, firſt the top of the plant, as ſoon as it has one joint, and then the ends of the earlieſt lateral ſhoots when they have two or three joints, they ſhould be carefully looked over thrice a week, to obſerve the ſetting of the young Melons, and ſingle out, upon each runner, that only which ſeems to be the ſtrongeſt fruit, which has the thickeſt foot-ſtalk, and which is ſituated neareſt to the ſtem. All the others ſhould then be pinched off; and the end of the runner upon which a Melon has been thus choſen ſhould alſo then be nipped off at the third joint above the ſelected fruit, to ſtop the ſap and ſet the Melon: but none of the ends of theſe bearing runners ſhould ever be broken off before the particular fruit has been culled out, becauſe that would only make them produce more ſhoots, which would weaken the plant, and draw away the nouriſhment neceſſary for the fruit. For this reaſon, if any new ſhoots do break out, or any young fruit appears, after the above precautions in favour of that which is intended to remain have been taken, they ſhould be nipped off immediately; for if many of them are ſuffered to grow, they will abſolutely impoveriſh the plant to ſuch a degree, that it would not be ſurprizing to ſee all the fruit drop off when it comes to be about as big as a man's thumb. One young Melon is as much as ought to be left upon any one runner; for, if but half of theſe ſtand, they will be full as many as the plant can nouriſh. Six or eight of the Cantaleupes, whoſe fleſh is thick, are full enough for the ſtrongeſt plant of that kind; and though ſome ſmaller ſorts may be ripened in greater numbers, even unto fifteen or twenty upon one plant, they will be thinner and poorer than if they were leſs numerous.

For plants which are ſo confined under frames, that the wind requiſite to convey the farina from the male flowers to the female is excluded, it is the practice of ſeveral gardeners, and perhaps it may there be even a neceſſary one, to take off ſome of the male flowers whoſe farina is juſt ripe and fit for the purpoſe, and, inverting them over the female flowers ſituated on the crown of the young fruit, to ſtrike the former gently with the tip of a finger, ſo as to ſhake its farina into the latter; for by this means the female flower will almoſt ſurely be impregnated, and if it is, its fruit will ſwell ſoon after, and ſhew manifeſt ſigns of being perfectly ſet: but, from the time that the fruit appears on the vines, the glaſſes ſhould be conſtantly taken off in good weather, or the fruit will ſeldom form in any plenty.

As the Melons draw towards ripening, they ſhould be turned gently twice a week, that every part of them may receive equal benefit from the ſun and air; for if the ſame ſide is ſuffered to lie continually downward, in which ſituation it will be deprived of both thoſe advantages, that ſide will become pale, or whitiſh, as if it were blanched.

Beſides airing the plants as much as poſſible when the weather will permit, they will alſo require to be watered in very dry weather, and perhaps moſt particularly after they have been pruned: but this, as was before obſerved, ſhould be done with great care not to wet their ſtems, by pouring the water only in the alleys, at a diſtance from them: nor ſhould it be repeated oftener than once in a week or ten days. Then, indeed, the alleys ſhould be well ſoaked, to forward the growth of the fruit, and render it thick fleſhed: though it is eſſentially neceſſary not to over-water the plants.

The goodneſs of all Melons depends greatly on their being cut at a proper degree of maturity. The Cantaleupe, in particular, is ſo very nice in this reſpect, that it will loſe much of its delicacy if it be left but a few hours too long upon the vines. The beds ſhould therefore be looked over at leaſt twice every day when the fruit is ripening; and if thoſe which are intended for the table are cut early in the morning, before the ſun has warmed them, and laid by in a cool place till they are uſed, their flavour will be much better than if they are gathered later in the day, and ſerved up directly. Such as are cut afterwards, when the heat of the day has affected them, ſhould be put into a pail of cold ſpring water, or ice, to cool them, beefore they are ſet upon the table.

A ſure ſign of maturity in the Cantaleupe Melon is, its beginning to crack at the foot-ſtalk, and to emit a fragrant ſmell. Whenever this happens, the fruit ſhould be cut directly; for this ſort ſeldom changes its colour as the others do, and only a few hours delay will render it too ripe, as was before obſerved.

The beſt ſeeds of Melons are thoſe which are taken from the firmeſt and higheſt flavoured fruit; and if they are ſcooped out with the entire pulp, ſo as not to diſplace them, and left in it for two or three days before they are waſhed out, they will be benefited thereby. None but the heavy ſeeds, which ſink in the water, are worth ſaving.

Water MELON, or CITRUL, *Anguria*, conſidered by Linnæus as a ſpecies of the Gourd, but a diſtinct genus according to other botaniſts.

Culture of the Water-MELON.

The ſeeds of this Melon may be ſown in the hot-bed for early cucumbers; and at the beginning of February a quantity of dung ſhould be thrown in a heap for about twelve days; at which time it will be of a proper heat to make a bed with; this ſhould be covered three inches thick with loamy earth; raiſing hills on it of the ſame earth a foot and a half high, over which a three-light frame ſhould be placed, and when the bed is of a proper temper, the plants muſt be placed on it, one in the center-light of each frame, obſerving to water and ſhade them till they have taken good root, freſh air muſt always be admitted to theſe plants, by raiſing the glaſſes in proportion to the warmth of the weather. As the branches extend, care ſhould be taken to lead the ſhoots as they are produced, ſo as to fill each part of the frame, but not to crowd each other; they muſt be frequently weeded and watered, giving them but little at a time; and obſerve to keep the beds to a good temperature of heat. When the fruit appears admit air freely to the plants, in order to ſet it; but when the nights are cold, the glaſſes muſt be covered with mats to keep the beds warm.

MELON-THISTLE, *Cactus*, a genus of plants of which there are ſix ſpecies. 1. Great, or Hedge-hog Melon-Thiſtle. 2. Melon-Thiſtle with erect ſpines. 3. Melon-Thiſtle with broad recurved ſpines. 4. Melon-Thiſtle with long white recurved ſpines. 5. Small Childing Melon-Thiſtle. 6. Small American Melon-Thiſtle.

We ſhall confine ourſelves to the deſcription and culture of the laſt ſpecies, as it will be a ſufficient direction to the gardener for that of the reſt.

It is a native of America, where it covers the ſurface of rocky hills. The root is divided, ſpreading, and full of fibres. The plant burſts at once from the ſurface, without ſtalks or leaves; in form of a globular green maſs, with an uneven ſurface, this riſes in height, but alters its form in nothing, except that the whole becomes ſomewhat oblong, and the rough ſurface breaks into more diſtinct tubercles. When arrived at the full growth, it is ſeven inches high, bulky, cylindric, nearly of equal thickneſs throughout; and flatted at the top. Its colour, which at the firſt appearance was an obſcure green, becomes paler and brighter, and toward the ground is often ſtained with purple. The whole is compoſed of oval tubercles, which are ſmooth on the ſurface, cluſtered at the baſe, and armed at the top with brown and gloſſy thorns. The flowers add little to its beauty, they are very ſmall, of a white colour, and placed among the tubercles. Theſe are ſucceeded by fruit of an oblong form, and a moderate ſize; when perfectly ripe, its colour is a fine crimſon, lightly tinged with purple: this continues freſh upon the plants during the winter; and they make a moſt beautiful appearance at that ſeaſon.

The juice of the fruit is purple, and not ill taſted, and the ſeeds mixed among it are ſmall and black. If the whole plant is cut tranſverſely, it is found to be compoſed of a tender ſubſtance, not unlike that of an unripe cucumber; but of a greeniſh colour. The taſte is acrid, and there runs out a milky juice from the exterior part near the baſes of the tubercles, more ſharp in taſte than the fleſh.

Culture of the MELON-THISTLE.

It is propagated by ſeeds, which ſhould be ſown in pots filled with light earth, and plunged into a bark-bed. When the plants appear let them be thinned, ſo as to leave three or four in a pot, allow them a few gentle waterings, and by degrees inure them to the air. In a ſhort time they will be of a ſize fit to remove into ſeparate pots; this muſt be performed with great care, and the plants by no means buried in their loweſt part. They muſt have a little water, and be ſhaded in the heat of the day till they have taken root; and towards autumn they muſt be taken into the ſtove, where they ſhould have but very little water. When young plants appear in the pots at the bottom of the old ones, they always riſe from fallen ſeeds, and may be planted into ſeparate pots, and treated in the manner directed for the ſeedlings. By ſuch management the plants ripen their ſeeds freely in this country.

MENTZELIA, a genus of plants which has no Engliſh name, and only one ſpecies.

It is a native of La Vera Cruz, where it riſes with a ſlender, ſmooth, ſtiff ſtalk, a little woody, more than three feet high, branching out alternately at diſtances; the branches are diſtorted, and run into one another. The leaves are ſhaped like the point of a halbert, ſtanding alternately upon ſhort foot-ſtalks, covered with ſhort hooked prickles. The flowers come out ſingly from the joints of the ſtalks, reſting upon a cylindrical germen, which is near an inch in length, narrow at the baſe, but wider upward. Upon the top of it comes out the empalement: the flowers are of a pale yellow colour. In the middle riſes a great number of ſtamina which are erect, terminated by ſingle ſummits; from the germen riſes a ſingle ſtyle, crowned by a ſingle ſtigma. The germen afterwards turns to a long cylindrical capſule, armed with prickles as the leaves; theſe have but one cell, which is filled with ſmall ſeeds.

Culture of the MENTZELIA.

This is an annual plant, and is propagated by ſeeds which ſhould be ſown on a hot-bed early in the ſeaſon, that the plants may be brought forward in the ſpring, otherwiſe they will not produce ripe feed in this country. When the plants are come up about an inch high, they ſhould be each tranſplanted into a ſeparate pot, and plunged into a hot-bed of tanner's bark, being careful to ſhade them from the ſun until they have taken new root; they are then to be treated in the ſame manner as other tender annual plants.

MERCURY, *Mercurialis*, a genus of plants ranged by Linnæus among the *dioecia enneandria*. There are four ſpecies of it, one only of which is found in gardens, *viz.* Mercury with a ſhrubby ſtalk, and woolly leaves; another of the ſpecies is a native of Africa, and the reſt grow commonly as weeds in gardens, and upon dunghills.

Culture of the MERCURY.

If the ſeeds of this ſpecies are permitted to ſcatter, the plants will come up the following ſpring. The ſeeds ſhould be ſown in autumn, becauſe thoſe ſeeds which are ſown in the ſpring, never grow the ſame year. This plant requires a warm ſituation, and a dry, rubbiſhy ſoil, in which it will live three or four years.

Engliſh MERCURY, a ſpecies of Gooſe-Foot. See the article GOOSE FOOT.

MEUM, a ſpecies of Spignel. See the article SPIGNEL.

MEZEREON, a ſpecies of Daphne. See the article DAPHNE.

MILDEW, *Rubigo*, a diſeaſe happening to plants cauſed by a dewy moiſture, ſuppoſed by ſome to be a ſpecies of blight, though others make them very different. See the article BLIGHT.

The Mildew, properly ſo called, ſometimes reſts upon the leaves of trees in form of a fatty juice; it is tough and viſcous to the touch, and the ſun's heat drying it up, it becomes yet more viſcous and hard. The moſt happy remedy for this is a ſmart ſhower of rain, and immediately afterwards a briſk wind, which wholly diſperſes it.

MILFOIL, a ſpecies of Achillea. See the article ACHILLEA.

MILKWORT, *Polygala*, a genus of plants ranged by Linnæus among the *diadelphia hexandria*, of which he diſtinguiſhes no leſs than twenty-two ſpecies, ſome of which grow naturally in Europe, and others in Aſia, Africa, and America, but the three following only are to be met with in the Engliſh gardens. 1. Milkwort with creſted flowers, a moon-ſhaped keel, and a ſhrubby ſtalk, bearing oblong leaves, which end in obtuſe petals. 2. Milkwort with flowers growing thinly, and without beards, the point of the keel roundiſh, a ſhrubby ſtalk, and ſpear-ſhaped leaves. 3. Milkwort with ſpiked flowers, without beards, an erect, ſingle, herbaceous ſtalk, and broad ſpear-ſhaped leaves, commonly called Senega Rattle-ſnake-wort.

The firſt ſpecies is a ſhrubby plant, and a native of Ethiopia. The ſecond grows naturally in Africa, Switzerland, and the mountains of Alſatia; and the third in Virginia, Penſylvania, and Maryland.

Culture of the MILKWORT.

The firſt ſpecies may be propagated by cuttings, but the beſt method is to raiſe it from ſeeds, which ſome years ripen very well in England, and ſhould be ſown ſoon after they are ripe, in ſmall pots filled with light loamy earth; let the pots be placed where they have the morning ſun only, till October; when they ſhould be removed under a hot-bed frame, and plunged into old tanner's bark which has loſt its heat; and here let them be defended from froſt during the winter. In the ſpring let the pots be plunged into a moderate hot-bed, and when the plants appear, let them have a large ſhare of free air admitted to them; when they are fit to be tranſplanted, let them be taken out of the pots, and planted each into a ſmall pot, filled with light loamy earth. Let the pots be plunged into a moderate hot-bed, obſerving to ſhade them from the ſun, and let the plants be gently refreſhed with water; when they have taken root they ſhould be gradually inured to bear the open air, and in June you may place them abroad in a ſheltered ſituation, where they may remain, if the ſeaſon proves favourable, to the end of October; when they ſhould be removed into the green-houſe, and the ſucceeding Midſummer ſet them out among the green-houſe plants.

The ſecond ſpecies is cultivated by ſeeds, which ſhould be ſown ſoon after they are ripe in pots. Let the pots be plunged in the ground, where they may have but little ſun, and let them be protected from ſevere froſts. After the plants come up, the pots ſhould be placed in the ſhade during the ſummer, and in autumn the plants may be turned out of the pots, and planted in a border where they ſhould have only the morning ſun. If the winter proves ſevere, it will be proper to cover the ſurface of the ground about their roots with mulch, to keep out the froſts.

The third ſpecies is propagated by planting the roots, which may be procured from the place where they grow naturally; they ſhould have a ſheltered ſituation, and be planted in a bed of light earth. In ſummer they ſhould be kept clean from weeds, and in winter the ground about their roots ſhould be covered with old tanner's bark, or any other kind of mulch, to keep out the froſt.

MILLERIA, a genus of plants of which there are five ſpecies. 1. Milleria with heart-ſhaped leaves, and foot-ſtalks ariſing from the diviſion of the ſtalks. 2. Milleria with the lower leaves oval, heart-ſhaped, acute-pointed, and rough, and the upper ones oval, ſpear-ſhaped, and pointed. 3. Milleria with oval leaves, and ſimple foot-ſtalks. 4. Milleria with oval, ſpear-ſhaped, acute-pointed leaves, having three veins, and foot-ſtalks proceeding from the wings of the leaves. 5. Milleria with rough, ſpear-ſhaped leaves, and flowers growing in cluſters from the wings of the ſtalks.

Theſe are all ſhrubby plants, and natives of Campeachy.

Culture of the MILLERIA.

All the ſpecies are propagated by ſeeds, which ſhould be ſown early in the ſpring on a moderate hot-bed. When the plants are about two inches high, they ſhould be each tranſplanted into a ſeparate pot filled with light rich earth, and then plunged into a moderate hot-bed of tanner's bark, where they muſt be ſhaded from the ſun till they have taken root, and watered frequently.

After the plants are rooted, they ſhould have a large ſhare of free air admitted to them, and in a month's time they will be fit to tranſplant into larger pots; theſe muſt be plunged into the bark-bed in the ſtove, where they may have room to grow, eſpecially the firſt and ſecond ſpecies, which, with the above management, will grow very high, and branch out extremely; but the other ſorts ſeldom riſe above four feet, and do not ſpread their branches very far, ſo that they require leſs room.

In the middle of July theſe plants will begin to flower, and continue doing ſo till Michaelmas, or later, if the ſeaſon proves favourable, but when the cold weather comes on, they ſoon decay.

MIMULUS, a genus of plants ranged by Linnæus among the *didynamia angioſpermia*, and of which there is only one ſpecies.

It is a native of North America. The root is formed of many fibres connected to an oblong head. The ſtalk is round, purpliſh at the bottom, and toward the top whitiſh, with ſome green. The leaves are of a beautiful ſhape and colour, they are oblong, broad at the baſe, where they encompaſs the ſtalk, and ſharp at the point: of a fine ſtrong green, and not ſerrated at the edges. The plant does not ſend out many branches, ſo that its flowers regularly and beautifully riſe on long foot-ſtalks from near the middle, to the top. Theſe are of a very fine violet blue, ſometimes tinged with reddiſh: and each of them is ſucceeded by an oval capſule, in which are many ſeeds. The body of the flower conſiſts but of one petal, and it has a gaping aſpect. The tubular part is gradually expanded, and at the verge opens into a conſiderable breadth, and is cut into two lips. The upper one is ſplit at its top, and turns back at the edges: the lower lip is broader, and is divided into three round parts; and at the baſe of this lip there appears a ſwelling palate. When the flower firſt opens, theſe parts are confuſed, and when it begins to fade, they in ſome meaſure loſe their form: when it is juſt in perfection, they are to be ſeen regularly; and the flowers are then very elegant, as well as peculiar in their form.

Culture of the MIMULUS.

It is propagated by ſeeds which, if it is poſſible, ſhould be procured from America, if not, let them be carefully ſaved from plants growing here.

Let four pots of a middling ſize be filled with earth, taken from under the turf in an upland paſture, without any addition. Set theſe in ſome part of the garden open to the morning ſun, and defended from cold winds, and in the beginning of December, ſcatter upon the ſurface a few of the ſeeds. Sprinkle over them a very light covering of the ſame earth. In ſpring there will be ſeen ſeveral young plants in each pot; when theſe have ſome little height, let the ſtrongeſt plant that ſtands near the middle of each pot be marked, and carefully draw up all the others; theſe may be planted in common ground to take their chance; and the reſt muſt be left one in each pot to riſe gradually. In ſummer let them be ſet out among the green-houſe plants, and give them but little water; this will keep them from growing too large, and will keep back their flowering for that late ſeaſon, when they will be moſt valued. At the approach of winter, let them be taken into the green-houſe, and when the top flowers are paſt, let thoſe be taken off, and not left for ſeed; and thus it will continue a long time in beauty.

MINT, *Mentha*, a genus of plants ranged by Linnæus among the *didynamia gymnoſpermia*; of which he enumerates ten ſpecies. 1. Mint with ſpiked flowers, and heart-ſhaped, indented, waved ſeſſile leaves, being the Daniſh, or German curled Mint. 2. Mint with ſpiked flowers, and oblong ſawed leaves, commonly called Spear-Mint. 3. Mint with flowers growing in heads, oval, ſawed leaves, upon foot-ſtalks, and ſtamina longer than the petals, or the great round-leafed Water-mint. 4. Mint with flowers growing in heads, and ſpear-ſhaped ſawed leaves, upon very ſhort foot-ſtalks, called Peppermint. 5. Mint, with flowers growing in whorls, oval, acute, ſawed leaves, and ſtamina ſhorter than the petals, or the Calamint. 6. Mint with flowers growing in whorls, oval, acute, ſawed leaves, and ſtamina equalling the petals. 7. Mint with flowers growing in whorls, and ſpear-ſhaped, ſawed leaves, upon foot-ſtalks. 8. Mint, with flowers growing in whorls, oval, obtuſe, crenated leaves, and creeping, taper ſtalks. 9. Mint, with flowers growing in whorls, and linear leaves, or the narrow-leafed Pulegium, or Pennyroyal. 10. Mint, with flowers growing in heads, round a divided ſtalk, oval, crenated leaves, and a woody ſtalk.

Moſt of theſe ſpecies are natives of this country. The ſeventh grows naturally in Canada; and the tenth is a native of the Canary Iſlands.

Culture of the MINT.

Theſe are all perennial plants, and may be propagated by parting the roots in the ſpring, or by planting cuttings in any of the ſummer months, but they muſt have a moiſt ſoil, and if the weather proves dry, they muſt be often watered till they have taken root. They ſhould be planted in beds of four feet width, with walks two feet wide between them, and ſhould be ſet at five inches diſtance. They ſpread ſo faſt at the roots, that the bed ſhould never ſtand above three years before they are taken up and tranſplanted; for the roots after this time will mat and clog together ſo as to choak one another.

When Mint is cut for diſtilling, or for any medicinal uſe, it ſhould be done in very dry weather, when the plants are juſt coming into bloom: for they are fulleſt of ſap, and higheſt in flavour, at that point of time. What is then cut ſhould be hung up to dry in a ſhady place, till it is wanted for uſe: but care muſt be taken not to hang it againſt a wall, becauſe this will make it turn black and mouldy. The ſame will alſo happen to Mint that is cut in wet weather.

If the ſoil be fit for this plant, it will afford three general cuttings every year: but thoſe ſhoots which come out after July, are ſeldom good for much. Theſe ſhould therefore be let ſtand till Michaelmas, when it will be right to cut the whole down cloſe to the ground, and, after carefully clearing away all the weeds, to ſift a little fine rich earth all over the beds, to the thickneſs of about an inch. This will give vigour to the roots left in the ground, and will make them ſhoot out finely the next ſpring.

Tree MINT, a genus of plants, ranged by Linnæus among the *didynamia monogynia*, and of which there is only one ſpecies.

The root of this plant is woody, brown, and divided into numerous parts. The ſtem, in its natural place of growth, often riſes naked to twelve feet in height, but here it ſeldom exceeds four or five feet, and is always branched from the bottom. The outer bark is brown, and on the ſmall ſhoots has a tinge of red: the inner rind is green. The young ſhoots are ſquare, in the manner of the ſtalks of our common Mints; but as they grow more firm, they looſe their angles and become round: they have alſo a downy matter hung about them at firſt, which falls off as they grow harder. The leaves ſtand naturally in pairs, but not invariable: they have long, browniſh, woody foot-ſtalks, and they are of an oval form, bluntly indented at the edges, and obtuſe at the end; their colour on the upper ſide is a fine pale green, and on the under they are white and hoary. The young ſtalks are alſo hairy, and the upper ſide of the leaves, though leſs diſtinct. The flowers are very numerous, naturally of a ſnow-white, but ſometimes tinged a little with a bluſh of red; they are ſingly ſmall, but they ſtand collected in thick heads or round cluſters, and they have hairy cups, which are very conſpicuous. The foot-ſtalks which ſupport theſe riſe from the boſoms of the leaves, from top to bottom of the plant, and they naturally divide into two parts when they have reached about two thirds of their length: theſe ſeparate parts ſupport each a tuft of flowers. The whole plant has an aromatic ſmell when bruiſed. The cup in which each is placed is formed of a ſingle piece, and tubular at the bottom, nipped at the rim into five ſegments. The body of the flower is formed of a petal, tubular, and divided at the rim into four ſegments, of which the upper one is broader than the reſt, and nipped at the top. In the body of the flower ſtand ſix filaments, crowned with roundiſh buttons; in the midſt of theſe riſes a ſingle ſtyle from a ſlight rudiment of a fruit, riſing in four ridges; this ſhould ripen into four diſtinct ſeeds, but the Mints in general have them often abortive.

Culture of the Tree MINT.

It is a native of the Canaries, where it thrives beſt in a rich, light, but not too dry ſoil. This we muſt imitate in the compoſt made to receive it, and with the winter ſhelter of a green-houſe it may be raiſed to all the ſtrength and vigour of its natural growth. The beſt compoſt is as follows.

Dig a barrow of good, rich black mould from under the turf in a meadow: mix with this an equal quantity of pond-mud, a buſhel of coarſe-ſand, and a peck of hogs dung: throw this in a heap, and turn it frequently.

In this compoſt the ſhrub may be raiſed either by ſeeds or cuttings, but the latter is much the better method, it ſaves a great deal of trouble, and the plants are ſtronger. If there be a neceſſity of raiſing it from ſeeds, from the want of opportunities to procure cuttings, care muſt be taken to get the ſeeds from the Canaries, for it very rarely ripens them here, and even then ſo imperfectly, that not one in fifty grows; therefore to raiſe a few plants a greater quantity of ſeed ſhould be ſown, and it muſt have the aſſiſtance of a hot-bed in ſpring: from this the young plants muſt be removed to a ſecond, and thence into pots, as we have directed for raiſing other green-houſe plants.

The cuttings ſhould be procured from a flouriſhing ſhrub, and in the beginning of April planted in pots of the compoſt. Theſe muſt be ſet in a bark-bed of very moderate heat, and when they have taken root they may be brought out by degrees among the green-houſe plants, after which they will require only the common care; they muſt be houſed early, and they require frequent waterings.

Cat's MINT, or NEP, *Nepeta*, a genus of plants, ranged by Linnæus among the *didynamia gymnoſpermia*: there are twelve ſpecies of it which are not worth particularizing.

Culture of the Cat's Mint.

All the ſpecies of Cat's Mint are perennial plants, eaſily propagated by ſeeds, which may be ſown either in ſpring or autumn, upon a poor, dry ſoil; or if they are permitted to fall the plants will come up without any further trouble, but to thin them where they grow too cloſe, and to keep them clean from weeds.

MITCHELLA, a genus of plants, of which there is only one ſpecies.

This elegant little plant is a native of North America. The root is compoſed of many long fibres, connected to a ſmall head. The ſtalk is round, and not very firm, ſtained towards the ground with red, and the reſt of a pale green. The leaves are placed in pairs: they are ſmall, oval, and of a freſh green, lightly ribbed, and ſupported on ſlender foot-ſtalks. The flowers terminate the ſtalk, and two naturally riſe there together; they are large, white, and hairy within.

Culture of the Mitchella.

It is propagated by ſeeds, which ſhould be ſown on a bed of the following compoſt; mix two parts garden-mould and one of pond-mud: make a bed of this in the nurſery, and in ſpring ſow the ſeeds on it. When the plants come up they ſhould be thinned if they riſe too cloſe, and carefully weeded and watered till they are of a ſize to tranſplant: they may then be planted out in the garden in ſheltered places, and they will flower in their full natural perfection.

MOLY, a ſpecies of Allium, and propagated in the ſame manner as Garlick. See the article Garlick.

MONARDA, a genus of plants that has no Engliſh name, ranged by Linnæus among the *diandria monogynia*, and of which there are five ſpecies. 1. Monarda, with headed flowers, the ſtamina of which are almoſt in two bodies, and an acute, angular ſtalk, commonly called Oſwego Tea. 2. Monarda, with heads of flowers terminating the ſtalks, which have obtuſe angles. 3. Monarda, with headed flowers, and the leaves ſmooth and ſerrated. 4. Monarda, with flowers growing in whorls, the petals of which are ſpotted. 5. Monarda, with flowers growing in whorls, and the corolla longer than the involucrum.

The firſt ſpecies is a native of Penſylvania and New-York. The root is compoſed of many fibres connected to an oblong head. The ſtalk is ſquare, thick, firm, upright, riſing two feet high: the angles are ſharp, and the colour is a pale green, often tinged with brown or red. The leaves are placed in pairs, and have ſhort foot-ſtalks: they are broad, ſharp-pointed, deeply ſerrated at the edges, and of a dark green. The flowers naturally terminate the ſtalk in a large beautiful ſcarlet head: but often there riſes another head ſupported on a ſlight ſtalk, which takes its origin from the centre of the firſt, and is a kind of continuation of the main ſtem. The flowers are very numerous and elegant: they are long, tubulated, gaping, and in colour of a bright ſcarlet. The cup is formed of one piece, tubular, ſtriated, and cut into five equal ſegments at the edge. One petal forms the flower, it riſes from the cup with a long tube, and is at the extremity ſplit as it were into two lips; the upper lip is long, narrow, undivided, and all the way of equal breadth: the lower lip is broader, it turns down, and is cut into three ſegments, of which the two ſide ones are ſmall and obtuſe, and the middle one longer, narrower, and nipped at the end.

The ſecond ſpecies is a native of Canada. The ſtalks are hairy, have obtuſe angles, and riſe three feet high. The leaves are oblong, hairy, broad at their baſe, but end in acute points, a little indented on their edges, and placed by pairs. The ſtalks and branches are terminated by heads of elegant purple flowers.

The third ſpecies greatly reſembles the ſecond, only the leaves are ſmoother, and the flowers are almoſt white.

The fourth ſpecies is a native of Virginia. It riſes with ſquare ſtalks about two feet high, theſe branch out from bottom to top. The leaves are ſpear-ſhaped, and ſlightly indented on their edges. The flowers are ſituated in whorls near the top of the ſtalk: they are large, and their colour is yellow, ſpotted with purple.

The fifth ſpecies is very like the fourth, only the flowers are not ſpotted.

Culture of the Monarda.

The firſt, ſecond, and third ſpecies are propagated by ſeeds, which ſhould be ſown the beginning of September on a bed of freſh earth. When the young plants come up they muſt be thinned and kept clear from weeds: toward the end of May they may be taken up with a ball of earth, and planted where they are to remain; they will require frequent waterings, and ſhould be allowed a foot and a half diſtance from each other, or from other plants, and they will thus flower in full perfection.

The fourth and fifth ſpecies are alſo propagated by ſeeds, which, if ſown on a border of light earth expoſed to the eaſt, the plants will riſe freely; when they are fit to remove they may be tranſplanted into a ſhady border, in the ſame manner as directed for the firſt ſort: and if they ſhould ſhoot up ſtalks to flower, they ſhould be cut down to ſtrengthen the roots, that they may put out lateral buds, for when they are permitted to flower the firſt year, the roots ſeldom live through the winter. In the autumn the plants may be removed, and planted in the open borders of the pleaſure-garden, where they will flower the following ſummer: and if the ſeaſon ſhould prove dry, they ſhould be duly watered, otherwiſe they will not be near ſo beautiful.

MONEYWORT, a ſpecies of Looſe-ſtriſe. See the article Looſe-strife.

MONKSWOOD. See the article Aconite.

MOONSEED, *Meniſpermum*, a genus of plants, of which there are three ſpecies. 1. Moonſeed, with a navel-ſhaped leaf. 2. Moonſeed, with an ivy-leaf. 3. Moonſeed, with heart-ſhaped leaves, which are hairy on their under ſide.

The firſt ſpecies is a native of North America. It has a thick, ligneous root, from which are ſent out many climbing ſtalks, which become ligneous, and riſe to the height of twelve or fourteen feet, twiſting themſelves about the neighbouring plants for ſupport. The leaves are large, ſmooth, and roundiſh: their foot-ſtalks are placed almoſt in the middle of them; on the upper ſide there is a hollow in that part of the leaf, reſembling a navel. The flowers come out in looſe bunches from the ſides of the ſtalks: they are of an herbaceous colour, ſmall, and compoſed of ſix oblong, oval petals, and ſix very ſhort ſtamina, terminated by ſingle ſummits; the three germen ſituated in the center, turn to ſo many channelled berries, each containing one compreſſed ſeed.

The ſecond ſpecies differs from the firſt in the ſhape of its leaves, which are angular: their foot-ſtalks join to the baſe of the leaves, ſo have no umbilical mark on their ſurface. The ſtalks of this become ligneous, and raiſe as high as thoſe of the firſt ſort: the flowers and berries do not differ from them.

The third ſpecies is a native of Carolina: this differs from the ſecond ſort in its roots not becoming woody as thoſe do. The ſtalks are alſo herbaceous; the leaves are entire and hairy, not ſo large as thoſe of the ſecond, nor is the plant ſo hardy.

Culture of the Moonseed.

The firſt ſpecies is eaſily propagated by laying down of the branches, which if performed in autumn, they will have made good roots by that time twelvemonth, when they may be ſeparated from the old plant, and tranſplanted where they are deſigned to remain; theſe plants require ſupport, for their branches are ſlender and weak. If theſe are planted near trees in wilderneſs quarters, where their ſtalks may have ſupport, they will thrive better than in an open ſituation.

The ſecond ſpecies is propagated in the ſame manner as the firſt.

The third ſpecies is propagated by parting of the roots: the beſt time for doing this is in the ſpring, a little before the plants begin to ſhoot; theſe ſhould be planted in a warm ſituation and a light ſoil cloſe to a wall expoſed to the ſouth or weſt: their ſtalks muſt be faſtened up to prevent their trailing upon the ground: in this ſituation the plants will ſometimes flower, and by being ſheltered in ſevere froſts, their ſtalks may be preſerved from injury.

MOONWORT. See the article Sattin-flower.

MORINA, a genus of plants that has no Engliſh name, and of which there is only one ſpecies.

It is a native of Perſia. The root is taper, running deep into the ground, ſending out ſeveral thick, ſtrong fibres. The ſtalk riſes near three feet high: it is ſmooth, of a purpliſh colour towards the bottom, but hairy and green towards the top. The leaves are prickly, of a lucid green on their upper ſide, armed on their edges with ſpines. The flowers come out from the wings of the leaves on each ſide of the ſtalk: theſe have very long tubes, which are ſlender at the bottom, but are enlarged upwards, and are a little incurved; the brim opens with two large lips, the upper lip is indented at the top and rounded, the lower lip is cut into three obtuſe ſegments; under the upper lip are ſituated two briſtly ſtamina, which are crooked, and crowned with yellow ſummits. The flowers appear in July, ſome of them are white, and others of a purpliſh red on the ſame plant.

Culture of the Morina.

This plant is propagated by ſeeds, which it never ripens here, ſo muſt be obtained from the place where it is native; theſe ſhould be ſown in autumn in the place where the plants are to remain, for they ſend forth tap roots, which run very deep into the ground, and when theſe are broken or injured in tranſplanting, the plants ſeldom thrive after; they may be ſown in open beds or borders of freſh light earth, being careful to mark the places that the ground may not be diſturbed; for it frequently happens that the ſeeds do not come up the firſt year when they are ſown in autumn: but when they are ſown in the ſpring, they never come up till the year following. The ground where the ſeeds are ſown muſt be kept clean from weeds, which is all the care they require till the plants come up; where they are too cloſe together, they ſhould be thinned ſo as to leave them near eighteen inches apart. In the ſpring, juſt before the plants put out new leaves, ſtir the ground gently between them, and lay a little freſh earth over the ſurface of the bed to encourage them.

Red MOROCCO, a ſpecies of Bird's, or Pheaſant's-eye. See the article Pheasant's-eye.

MOSCHATEL, Hollow-Root, or Musk-Crowfoot, *Adoxa*, a genus of plants, ranged by Linnæus among the *octandria tetragynia*, of which there is only one ſpecies.

This plant grows naturally in the woods of England, and moſt other countries in Europe. The leaves and flowers ſmell ſtrongly of muſk.

Culture of the Moschatel.

It is propagated by parting the roots in autumn, which ſhould always be planted in the ſhade of trees or ſhrubs, and they require no other culture than being watered and kept clear from weeds.

MOTHERWORT, a ſpecies of Lion's-tail. See the article Lion's-tail.

Moth MULLEIN, a ſpecies of the Mullein. See the article Mullein.

MOULD, a looſe kind of earth, every where obvious on the ſurface of the ground, called alſo natural or mother-earth: by ſome alſo loam. The goodneſs of a mould, for the purpoſes of gardening, &c. may be known, according to Miller, by the ſight, ſmell, and touch. 1. Thoſe moulds that are of a light cheſnut or hazelly colour, are counted the beſt: of this colour are the beſt loams, and alſo the beſt natural earth, and this will be the better yet, if it cut like butter, and does not ſtick obſtinately, but is ſhort, tolerably light, breaking into ſmall clods, is ſweet, will be tempered without cruſting or chopping in dry weather, or turning to mortar in wet. Next to that the dark grey and ruſſet moulds are counted the beſt, but the light and dark aſh-colour the worſt, ſuch as is uſually found on common heathy ground; the clear tawny is by no means to be approved, but that of a yellowiſh red colour is the worſt of all: this is commonly found in wild and waſte parts of the country, and for the moſt part produces nothing but goſs, furze, and fern, according as their bottoms are more or leſs of a light and ſandy, or of a ſpewy, gravel, or clayey nature. 2. All lands that are good and wholeſome, will after rain, or breaking up by the ſpade, emit a good ſmell. 3. By the touch we may diſcover whether it conſiſts of ſubſtance entirely arenaceous or clammy: or, as it is expreſſed by Mr. Evelyn, whether it be tender, fatty, deterſive, or ſlippery: or more harſh, gritty, porous, or friable.

MULBERRY-TREE, *Morus*, a genus of plants, ranged by Linnæus among the *monoecia tetrandria*: of which there are ſeven ſpecies, but three of theſe only are cultivated in Engliſh gardens; *viz.* 1. Mulberry, with oblique, ſmooth, heart-ſhaped leaves; or the Mulberry with a white fruit. 2. Mulberry, with rough, heart-ſhaped leaves, being the Mulberry with a black fruit; or the common Mulberry. 3. Mulberry, with hand-ſhaped leaves, and prickly fruit.

The firſt ſpecies is a native of China; the ſecond ſort grows wild in Italy, near the ſea-coaſts; and the third is a native of Japan and China.

The firſt ſpecies, or the white Mulberry-tree is commonly planted for its leaves to feed ſilk-worms in France, Italy, &c. though the Perſians always make uſe of the common black Mulberry for that purpoſe. The trees which are deſigned to feed ſilk-worms, ſhould never be ſuffered to grow tall, but rather kept in a ſort of hedge, and inſtead of pulling off the leaves ſingly, they ſhould be ſheered off together with their young branches.

The ſecond ſpecies is common in moſt gardens, being planted for the delicacy of its fruit.

Culture of the Mulberry-tree.

The firſt ſpecies may be propagated either from ſeeds or layers, but the moſt expeditious way of raiſing it in any great quantity, is from ſeeds procured from the ſouth of France or Italy. The beſt method of ſowing theſe ſeeds in England, is to make a moderate hot-bed, which ſhould be arched over with hoops, and covered with mats: upon this bed the ſeeds ſhould be ſown the middle of March, and covered over with light earth, about a quarter of an inch deep. In very dry weather the bed ſhould be frequently watered, and in the heat of the day ſhaded with mats, and alſo covered in cold nights.

The ſecond ſpecies may be propagated by ſowing the ſeeds, or by laying down the tender branches, which in two years will take root, and may then be tranſplanted to the places where they are to remain. Thoſe plants which are propagated from ſeeds, are commonly the moſt vigorous, and generally make the ſtraiteſt ſtems: but then there is a very great hazard of their being fruitful, for it often happens that thoſe plants for the moſt part are of the male kind, which produce katkins, but ſeldom have much fruit: but as the trees raiſed by layers are ſubject to have crooked ſtems, there ſhould be care taken in the choice of ſtraight ſhoots to make layers, and when they are tranſplanted out, they ſhould have ſtraight ſtalks fixed down by each, to which they ſhould be faſtened as the ſhoot is extended, until it comes to the height you deſign the ſtem: then you may ſuffer the branches to extend as they ſeem inclinable, for this tree ſhould not be often pruned, but only ſuch branches ſhould be taken off which ſhoot croſs and bruiſe themſelves by cutting againſt each other, and ſuch as decay ſhould be cut off. This tree delights in a light ſoil, not too wet nor over dry, and ſhould have an open expoſure. The ſoil under this tree ſhould alſo be every year well dug and manured, though there will ſcarce any ſort of plants grow under it.

The third ſpecies may be propagated by laying down the branches, or planting the cuttings, and may be managed as was directed for the ſecond ſpecies.

MULLEIN, *Verbaſcum*, a genus of plants, ranged by Linnæus among the *pentandria monogynia*, of which there are nine ſpecies. 1. Mullein, with running leaves, which are woolly on both ſides, called Hig-taper, or Cows-lungwort. 2. Mullein, with oblong, wedge-ſhaped leaves. 3. Mullein, with heart-ſhaped, oblong leaves, growing on foot-ſtalks. 4. Mullein, with oblong, ſmooth leaves, embracing the ſtalks, and ſingle foot-ſtalks to the flowers; or white Moth Mullein. 5. Mullein, with lyre-ſhaped, winged leaves. 6. Mullein, with the lower leaves oblong, ſinuated, woolly, and waved, and thoſe on the ſtalks heart-ſhaped, embracing the ſtalks with their baſe, and almoſt naked. 7. Mullein, with naked, oval, crenated, lower leaves, and an almoſt naked branching ſtalk; or purple Moth Mullein. 8. Mullein, with naked, cut leaves, a leafy ſtalk, woolly cups, and two flowers to the foot-ſtalks. 9. Mullein, with woolly, linear leaves, and a naked ſtalk.

The firſt, ſecond, and third ſpecies grow naturally in this country, and all the reſt in different parts of Europe.

Culture of the MULLEIN.

The ſix firſt ſpecies are propagated by ſeeds, which ſhould be ſown in Auguſt, on a bed of light earth, in an open ſituation; the plants will come up in September, and the February following they ſhould be tranſplanted to the places in which they are to remain, at the diſtance of two feet aſunder. If their ſeeds are permitted to ſcatter they will come up without any farther care.

The ſeventh ſpecies is propagated by off-ſets; which ſhould be taken off in autumn, and planted time enough to get good root before winter, on an eaſt border, where they may have the morning ſun, and in a ſandy loam.

The eighth and ninth ſpecies are alſo propagated by off-ſets, which ſhould be taken off in autumn, and planted in ſmall pots filled with light, ſandy earth, and placed in a ſhady ſituation.

MULTISILIQUOUS PLANTS, thoſe which have, after each flower, many diſtinct, long ſlender ſiliquæ, or pods, in which their ſeeds are contained; ſuch as bear's-foot, columbine, houſeleek, navelwort, orpine, &c.

MUMMY, among gardeners, a kind of wax uſed in grafting and planting the roots of trees, made in the following manner: Take one pound of black pitch, and a quarter of a pound of turpentine; put them together into an earthen pot, and ſet them on fire in the open air, holding ſomething in your hand to cover and quench the mixture in time, which is to be alternately lighted and quenched, till all nitrous and volatile parts be evaporated. To this a little common wax is to be added; and the compoſition is then to be ſet by for uſe.

Dr. Agricola directs its being uſed in planting pieces of the roots of trees, in the following manner: Melt it, and having let it cool a little, dig in the two ends of the pieces of root, one after another; then put them in water, and plant them in the earth, the ſmall end downwards, ſo that the larger may appear a little way out of the earth, in order to have the benefit of the air; then preſs the earth hard down about them, that they may not receive too much wet. This work he recommends in the months of September, October, and November.

MUNTINGIA, a genus of plants that has no Engliſh name, and of which there are three pieces. 1. Muntingia with heart ſpear-ſhaped leaves, ending in acute points, woolly on their under ſide, and foot-ſtalks having one flower. 2. Muntingia with rough ſpear-ſhaped leaves, having three veins, and flowers growing in cluſters from the wings of the ſtalk. 3. Muntingia with oblong, oval, acute, rough leaves, and flowers having foot-ſtalks.

Theſe plants are all natives of the Weſt Indies, where the firſt ſpecies riſes to the height of thirty feet. The leaves are placed alternate on the branches; they are ſlightly ſawed on their edges, and of a lucid green. The flowers are white, and in ſhape reſemble thoſe of the bramble.

The ſecond ſpecies ſeldom exceeds the height of fourteen feet. The leaves are ſpear-ſhaped, rough, and reflexed on their edges. The flowers, which are ſmall and white, riſe from the boſoms of the leaves in cluſters.

The third ſpecies riſes about fifteen feet high. The leaves are rough, a little hairy, and of a yellow green. The flowers grow in cluſters on the ſides of the branches; theſe are ſmall, and of a yellow colour.

Culture of the MUNTINGIA.

Theſe plants are propagated by ſeeds, which ſhould be ſown in pots filled with light rich earth, and plunged into a moderate hot-bed of tanners bark, where they may remain till Michaelmas, when they ſhould be removed into the ſtove, and ſet in the bark-bed. During the winter ſeaſon the pots ſhould now and then be watered when the earth appears very dry. In the beginning of March the pots ſhould be removed out of the ſtove, and placed in a freſh bark-bed under frames, which will bring up the plants ſoon after. When they are about two inches high they ſhould be carefully taken out of the pots, and each planted in a ſeparate ſmall pot filled with the earth before directed, and then plunged into the hot-bed again, where they muſt be ſhaded till they have taken new root; after which they ſhould be conſtantly watered. In autumn when the nights begin to be cold the plants muſt be removed into the ſtove and plunged into the bark-bed.

It will be proper while theſe plants are young to keep them in the ſtove all the year, allowing them a large ſhare of air in warm weather, but as they advance in ſtrength they will be more hardy; they may then be more expoſed in ſummer, and in winter will live in a dry ſtone, if kept in a moderate degree of heat.

MUSHROOMS, *Fungi*. Theſe are by many ſuppoſed to be produced from the putrefaction of the dung in which they are found; but notwithſtanding this notion is pretty generally received among the unthinking part of mankind, yet, by the curious naturaliſts, they are eſteemed real plants; for they have a regular root, a ſtalk conſiſting of ſeveral arrangements of fibres, the interſtices of which are filled up with a parenchymatous ſubſtance, leading from the root to the head or umbel, the under-ſide of which is full of lanrellæ or chives, every one of which is a regular pod or ſeed-veſſel. If theſe lamellæ are examined in their ſeveral ſtates, the ſeeds in them may be eaſily diſcovered, and are always found to be of a ſize and degree of maturity proportioned to the ſtate of the plant: they have each of them alſo a ſiliquacecus aperture lengthways, the ſeeds lying in rows ready to fall through it. The plant is eaſily and regularly propagated through theſe, and may not only be raiſed from ſeed, but, like many other plants, may be propagated by roots; the ſeveral filaments at the root producing tubercles, in the manner of the potatoe; from each of which there will ariſe new roots, and a new plant. Hence, like other vegetables, they are annually propagated by the gardeners near London for ſale. We ſhall therefore deſcribe the method of cultivating them; but as there are ſeveral unwholſome ſorts, we ſhall firſt give a ſhort deſcription of the true eatable kinds. Theſe at firſt appear of a roundiſh, like a button, the upper part of which, as alſo the ſtalk, is very white: but being opened, the under part is of a livid fleſh colour, but the fleſhy part, when broken, is very white; when theſe are ſuffered to remain undiſturbed, they will grow to a large ſize, and explicate themſelves almoſt to a flatneſs, and the red part underneath will change to a dark colour.

Culture of MUSHROOMS.

Theſe are propagated by off-ſets, and if you have no beds of your own that produce theſe plants, you ſhould look abroad in rich paſtures, during the months of Auguſt and September, till you find them; and then opening the ground about their roots, you will often find the earth full of ſmall white knobs, which are off-ſets from the Muſhrooms: theſe ſhould be carefully gathered, and preſerved dry with the earth about them. The Muſhroom-beds ſhould be made of dung in which there is good ſtore of litter. Theſe beds ſhould be made on dry ground, and the dung being laid upon the ſurface about a foot thick, two feet and a half broad, and of a length in proportion to the quantity of muſhrooms deſired, it ſhould be covered about four inches deep with ſtrong earth; upon this lay more dung, about ten inches thick; then another layer of earth; ſtill drawing in the ſides of the bed, ſo as to form it like the ridge of an houſe, which may be done by three layers of dung, and as many of earth. When the bed is finiſhed, it ſhould be covered with litter, to keep out the wet, and prevent its drying; in this ſituation it may remain eight or ten days, by which time it will be of a proper degree of warmth; the litter ſhould then be taken off, the ſides of the bed ſmoothed, and a covering of light rich earth ſhould be laid over the bed; upon this the ſmall roots or off-ſets of the Muſhrooms ſhould be put, placing them two or three inches aſunder; then gently cover them about half an inch thick with the ſame light earth; and again put on the covering of litter. The great ſkill in managing theſe beds, is that of keeping them in a proper temperature of moiſture. By this means Muſhrooms may be produced all the year; and when the beds are deſtroyed, the ſurface which contains the duſt and roots of the Muſhrooms, ſhould be laid by in a dry place for a freſh ſupply, till the proper time of uſing it.

MUSK, a ſpecies of Hibiſcus. See the article HIBISCUS.

MUSK, or GRAPE-HYACINTH, *Muſcari*, according to Linnæus a ſpecies of Hyacinth, but by other botaniſts conſidered as a diſtinct genus, of which there are ſeveral ſpecies; all of them perennial plants, and very hardy.

Culture of the MUSK-HYACINTH.

Theſe plants are propagated by off-ſets. In June, when the leaves of theſe plants are decayed, the roots ſhould be taken up, and ſpread upon mats in a dry place for a fortnight, till the bulbs are dried; then they may be packed up, each ſort by itſelf, till October, when they are to be planted in borders for flowering the following ſpring.

They ſhould never be ſuffered to remain in the ground more than two years unremoved, for they multiply ſo faſt, that the number of off-ſets greatly weakens the flowering roots, and the flowers are conſequently ſmall.

MUSK-CROWFOOT. See the article MOSCHATEL.

MUSTARD, *Sinapis*, a genus of plants ranged by Linnæus among the *tetradynamia ſiliquoſa*, and of which there are five ſpecies. 1. Muſtard with many angled, rough, ſwelling pods, and a longer beak. 2. Muſtard with prickly pods, and a very long, oblique beak, commonly called White Muſtard. 3. Muſtard with a ſmooth, four-cornered pod, or common Muſtard. 4. Muſtard with bundled branches, and the upper leaves ſpear-ſhaped, and entire. 5. Muſtard with double-winged leaves, and linear ſegments. All theſe ſpecies are annual plants, the firſt grows naturally on arable lands in many parts of England, and is a common weed in ſeveral other places in Europe; it is never cultivated in gardens.

The ſecond ſpecies is a native of Switzerland, England, and France, and is commonly known by the name of the White or Garden-Muſtard; it is always ſown for a ſallad herb in ſpring.

The third ſpecies is the common Muſtard, which grows naturally in this country, and many other parts of Europe: it is cultivated in many places both in gardens and fields for its ſeeds.

The fourth ſpecies is a native of Aſia, and the fifth of Spain, but neither of theſe are ever admitted into the gardens.

Culture of the MUSTARD.

The ſeeds of the ſecond ſpecies muſt be ſown very thick in drills, on a warm border or a moderate hot-bed; and they will be fit to cut for ſallading in three weeks after the ſowing.

The third ſpecies is propagated by ſeeds, which ſhould be ſown in ſpring upon an open place, which has been well dug or ploughed. When the young plants come up, they muſt be cleared of weeds, and hoed up to about eight or ten inches aſunder; they will thus grow ſtrong, and when the ſeeds are ripe, the whole plant muſt be cut down, and the ſeeds threſhed out for uſe.

MYAGRUM, a genus of plants of which there are five ſpecies. 1. Myagrum with oval pods, having foot-ſtalks; commonly called Gold of Pleaſure. 2. Myagrum with heart-ſhaped pods ſtanding upon foot-ſtalks, having many ſeeds and indented leaves. 3. Myagrum with globular, compreſſed, ſmall pods. 4. Myagrum with ſhort pods, and the outer leaves ſinuated and indented. 5. Myagrum with ſmall heart-ſhaped pods, and leaves embracing the ſtalk. For the firſt ſpecies, ſee the article GOLD OF PLEASURE.

All the reſt are annual plants, and natives of different parts of Europe.

Culture of the MYAGRUM.

If the ſeeds of all theſe ſpecies are permitted to ſcatter in the autumn, the plants will riſe without any care, and only require to be thinned, and kept clean from weeds.

MYRTLE, *Myrtus*, a genus of plants ranged by Linnæus among the *icoſandria monogynia*, of which there are eight ſpecies; the following varieties of theſe are commonly cultivated in our gardens.

Two ſorts of Nutmeg-myrtles, one with a narrower leaf than the other: the ſtriped broad-leaved Myrtle, the ſtriped upright Myrtle, the Bird's-neſt Myrtle, the ſtriped Box-leaved Myrtle, the ſtriped Nutmeg-Myrtle, and the ſtriped Roſemary-leaved Myrtle.

Culture of the MYRTLE.

Theſe plants may all be propagated by cuttings, the beſt ſeaſon for which is the beginning of July, when choice ſhould be made of ſome of the ſtraiteſt and the moſt vigorous ſhoots, which muſt be about ſix or eight inches long; and the leaves on the lower part ſtripped off about two or three inches high, and that part twiſted which is to be placed in the ground; then let ſome pots be filled with light rich earth, and plant the cuttings therein, at about two inches diſtance from each other, obſerving to cloſe the earth faſt about them, and give them a gentle watering to ſettle it to the cuttings; then place the pots under a common hot-bed frame, and plunge them into ſome old dung, which will prevent the earth from drying too faſt; they muſt be carefully ſhaded in the heat of the day, and air allowed them in proportion to the warmth of the ſeaſon, obſerving to water them every two or three days. In about a month's time the cuttings will be rooted, and begin to ſhoot, when they muſt by degrees be inured to the open air, into which they ſhould be removed toward the latter end of Auguſt, and placed in a warm ſituation; where they may remain till the end of October, and then be removed into a greenhouſe, and muſt be placed in the cooleſt part of it, that they may have air given them, when the weather is mild.

The ſpring following theſe plants ſhould be taken out of the pots very carefully, preſerving a ball of earth to the roots of each of them, and they ſhould be placed into ſeperate ſmall pots filled with light rich earth, and place them under a frame until they have taken root; after which they ſhould be inured to the open air, and in May they muſt be placed abroad for the ſummer, in a ſheltered ſituation, where they may be defended from ſtormy winds. During the ſummer ſeaſon, they will require to be plentifully watered, eſpecially thoſe in ſmall pots, which in that ſeaſon ſoon dry; you muſt therefore obſerve to place them where they ſhould receive the morning ſun; for when they are too much expoſed in the heat of the day, the moiſture contained in the earth of theſe ſmall pots will ſoon be exhaled, and the plants greatly retarded in their growth.

In Auguſt following you ſhould ſhift them into pots a ſize larger, filling them up with the ſame rich earth, and be careful to trim the roots which were matted to the ſide of the pots, as alſo to looſen the earth from the outſide of the ball, ſome of which ſhould be taken off, that the roots may the eaſier find a paſſage into the freſh earth: then you muſt water them well, and at this time you may trim the plants, in order to reduce them to a regular figure; ſuch of them as are inclinable to make crooked ſtems, you ſhould thruſt down a ſlender, ſtrait ſtick, to which their ſtems ſhould be faſtened ſo as to bring them upright.

As theſe plants advance in ſtature, they ſhould annually be removed into larger pots, according to the ſize of their roots: but you muſt be careful not to put them into pots too large, which will cauſe them to ſhoot weak, and many times prove the deſtruction of them; therefore when they are taken out of the former pots, the earth about their roots ſhould be pared off, and that within-ſide the ball muſt be gently looſened, that the roots may not be cloſely confined, and then place them into the ſame pots again, provided they are not too ſmall, filling up the ſides and bottom of them with freſh rich earth, and giving them plenty of water to ſettle the earth to their roots, which ſhould be frequently repeated, for they require to be often watered both in winter and ſummer, but in hot weather they muſt have it in plenty.

The beſt ſeaſon for ſhifting theſe plants is either in April or Auguſt, for if it is done much ſooner in the ſpring, the plants are then in a ſlow growing ſtate, and ſo not capable to ſtrike out freſh roots again very ſoon: and if it is done later in autumn, the cold weather coming on will prevent their taking root.

In October, when the nights begin to be froſty, you ſhould remove the plants into the green-houſe: but if the weather proves favourable in autumn, they may remain abroad until the beginning of November: for if they are carried into the green-houſe too ſoon, and the autumn ſhould prove warm, they will make freſh ſhoots at that ſeaſon, which will be weak, and often grow mouldy in winter, if the weather ſhould be ſo ſevere as to require the windows to be kept cloſe ſhut, whereby they will be greatly defaced, for which reaſon they ſhould always be kept as long abroad as the ſeaſon will permit, and removed out again in the ſpring, before they begin to ſhoot out: and during the winter ſeaſon that they are in the green-houſe, they ſhould have as much free air as poſſible when the weather is mild.

Candleberry MYRTLE, a ſpecies of Myrica.

This plant is a native of North America. It riſes with ſeveral ſtrong ſhrubby ſtalks to the height of eight feet. The leaves are ſtiff, ſpear-ſhaped, of a yellowiſh green on their upper ſide, and paler on their under. The flowers grow in katkins, and the female ones are ſucceeded by ſmall roundiſh berries covered with a kind of meal.

Culture of the Candleberry MYRTLE.

It is propagated by ſeeds, which muſt be ſown in autumn, and the plants will come up the following ſpring. They muſt be carefully watered in dry weather, and ſcreened from froſts while young, which is all the care they require, for when they have obtained ſtrength, they will reſiſt the cold of this country very well in the open air.

N.

NAPÆA, a genus of plants which has no Engliſh name: there are only two ſpecies of it. 1. Napæa, with angular foot-ſtalks and rough leaves. 2. Napæa, with leaves having three acute-pointed lobes, and naked foot-ſtalks.

Theſe plants are natives of different parts of North America. The firſt ſpecies riſes to the height of eight feet. The leaves are rough, hairy, deeply cut into ſix or ſeven lobes, which are irregularly indented on their edges: theſe diminiſh in their ſize towards the top, where they have ſeldom more than three lobes. The flowers grow towards the top of the ſtalk, and are of a white colour. The ſtalks of the ſecond ſpecies riſe four feet high. The leaves are ſmooth, deeply cut into three lobes, which end in acute points, and are irregularly ſawed on their edges. The foot-ſtalk of the flower is placed at the baſe of the leaf, this is three inches long, and divides at the top into three ſmall ſtalks, each ſuſtaining one white flower.

Culture of the NAPÆA.

Theſe plants are eaſily propagated by ſeeds, which ſhould be ſown on a bed of common earth in the ſpring. When the plants come up they only require to be kept clean from weeds till autumn, when they may be tranſplanted into the places where they are to remain. They ſucceed beſt in a rich moiſt ſoil.

NARCISSUS, *Daffodil*, a genus of plants, ranged by Linnæus among the *hexandria monogynia:* of which there are ſix ſpecies. 1. Narciſſus, with one flower in a ſheath, and the limb of the nectarium very ſhort and rotated. 2. Narciſſus, with one flower in a ſheath, the limb of the nectarium bell-ſhaped, erect, and equal with the petals. 3. Narciſſus, with one flower in a ſheath, with a very large turbinated nectarium, and declined ſtamina. 4. Narciſſus, with one flower in a ſheath, and with a very ſhort nectarium, which is cut into ſix parts. 5. Narciſſus, with many flowers in a ſheath, a ſhort, bell-ſhaped nectarium, and awl-ſhaped leaves. 6. Narciſſus, with many flowers in a ſheath, with a bell-ſhaped nectarium, and plain leaves.

Theſe are all perennial plants, and of each ſpecies there are many varieties: among theſe the nine following are extremely beautiful, the culture of which will be found proper for that of all the reſt. 1. Fringed Narciſſus. 2. Golden Narciſſus. 3. Gold-cupped Narciſſus. 4. Great Orange Narciſſus. 5. Double Lemon Narciſſus. 6. Double oriental Narciſſus. 7. Great White Narciſſus. 8. Poetic Narciſſus. 9. Silver and Gold Narciſſus.

Fringed NARCISSUS. This plant is extremely valuable on account of the ſeaſon in which it flowers, for with right management it will annually rear its head among the ſnow in the ſevereſt winter, and add to the ſmall number of flowers at that ſeaſon.

The root is a ſmall bulb. The leaves are very long, of a moderate breadth, and a fine green: the ſtalk riſes in the midſt of theſe a foot in height, tolerably firm, and of a pale green. On its top ſtands a ſingle flower, ſo heavy that it droops; this riſes from within a plain, oblong ſcabbard, which, when it has performed the office of ſhielding the bud, droops and withers. The flower is large, and its colour a fine yellow: it is compoſed of a nectarium and ſix petals; the nectarium riſes hollow from its baſe, and ſpreads to the rim; the petals are ſix in number, and they are inſerted into the nectarium on the outſide, a little above the baſe. The nectarium is naturally divided at its edge into twelve ſegments, which are jagged at their ſides, and of a pointed form: theſe the luxuriance of culture will divide more deeply, in a curled manner, and edge the rim of this part with a perfect fringe. The ſeed-veſſel is roundiſh but ridged, and the ſeeds are numerous and round.

Culture of this NARCISSUS.

The beſt method of propagating this plant is by offſets, which it produces in great abundance; theſe ſhould be planted in a bed of freſh paſture-earth, with a very little cow-dung well mixed among it. When the plants come up, all the care they will require is being kept clear from weeds.

Golden NARCISSUS. This is a very elegant plant. The root is large, roundiſh, and furniſhed from the baſe with many thick, coarſe fibres. The leaves are uſually four: they are long, of moderate breadth; their colour is a blueiſh green, and they have ſome ſubſtance. The ſtalk is robuſt, round, naked, and a foot and half high, purpliſh at the bottom, and green towards the top: it has no leaves, but at the ſummit is placed a ſcabbard, ſerving as a general cup or defence for many flowers; this burſts when they are ready to appear, and becomes yellowiſh. The flowers riſe together from the head of the ſtalk in the bottom of this ſcabbard, ten, twelve, or more in number; together they make a large tuft, and they are ſeparately of a conſiderable ſize: each riſes naked from the ſtalk, and is compoſed of a nectarium and ſix petals. The colour is, in the whole, yellow, but with a great variation: the petals are of a delicate pale yellow, and the nectarium is deeper; this is very conſpicuous, though much ſhorter than the flower: it is formed in the manner of a bell, with an even rim, and ſtands out a little from the inſertion of the petals; theſe are ſix in number, and they are inſerted at ſome diſtance below the edge of the nectarium, in a regular expanded manner. From the flower riſe ſix filaments: they are terminated by oblong buttons. The ſtyle is ſingle, longer than theſe, and crowned with a three-parted ſtigma. The fruit is a roundiſh ſeed-veſſel, formed of three parts, lightly marked with three ridges, and contains many ſeeds in three cells, with a columnar receptacle.

Culture of this Narcissus.

It is propagated either by ſeeds or by parting of the roots: if by ſeeds great care ſhould be taken to ſave them from a good flower, and they muſt be ſown the firſt week in September in ſome one of the light rich compoſts, and ſet where they can have free air and the morning ſun. In winter the boxes muſt be removed into a ſouthern aſpect, and towards April be taken back into their firſt place again; in ſpring the leaves will appear, they muſt be kept clear from weeds, and ſometimes gently watered. Early towards autumn they will fade, and a quarter of an inch of the ſame compoſt muſt be then ſifted over them.

They muſt never throughout the year be kept with the mould too wet, nor crumbly through over dryneſs, and the third year they ſhould be ſeparated from the earth by ſifting, and planted out in a place ſheltered from winds, and not open to the full ſun. The firſt week in Auguſt is the beſt time for this: the bed muſt be kept clean from weeds, and five weeks after they muſt have a freſh covering of an inch of the ſame compoſt. In this bed they will flower, and there will be a mixture of extreme fine ones and ſome more common, but there will be very few bad flowers; they ſhould be marked when in bloom, and the ſucceeding Auguſt the roots of an inferior kind ſhould be taken up and planted in other parts of the garden, leaving the fine ones in the bed at a foot diſtance, where they muſt remain till the fourth year. They will thus blow every ſeaſon fairer than the laſt, and once in three years afterwards will yield many off-ſets.

Thoſe who chuſe to raiſe them from off-ſets, ſhould take ſuch as have been with the parent root three years in the ground; theſe ſhould be taken off in Auguſt, and planted at ten inches diſtance. When the plants come up they may be treated in the manner already directed for the ſeedlings.

Gold-cupped NARCISSUS. The root is roundiſh, full of a ſlimy juice, and hung with many fibres. The leaves are long and of a pale green, at firſt they are hollowed, but when they have ſtood ſome time they ſpread out flat, and grow yet paler. The ſtalk is a foot and half high, naked edged, and of a deeper green; on its ſummit ſtands a ſingle flower: this is very large, and of conſiderable beauty, it burſts out ſideways from a pale green ſcabbard, which is before this opening, oblong, compreſſed, and blunt at the end: this ſerves it as a cup, and withers ſoon after the full blowing. The body of the flower is formed of ſix large petals, oblong, broad, of an oval form, and of a nectarium which equals them in length: this is folded and rumpled at the ſides, and at the extremity expanded in form of a bell, with a waved, irregular, and ſinuated rim. The colour of the flower is yellow, the petals are of a pale but very pleaſing tinct, and the nectarium is of a deep gold yellow.

Culture of this Narcissus.

It may be propagated by off-ſets, or raiſed from ſeeds. The beſt method is to purchaſe Dutch roots, raiſed from the true kind by off-ſets in their gardens, and from the beſt produce of theſe to collect ſeeds for a freſh progeny. The firſt year let them flower, and cut down the ſtalks before they form the ſeeds: then when the leaves are withered take them up, dig out the mould, and fill the place with a light rich compoſt: plant in the roots again at fourteen inches diſtance, and keep the ſurface clear from weeds. The ſucceeding ſpring theſe roots will flower much ſtronger than the firſt. The fineſt flowers are thoſe which have the ſtrongeſt ſtalk, the largeſt flower, and the nectarium moſt folded, curled, and waved, and of the higheſt gold colour; the ſeeds ſhould be ſaved from theſe with care, and in the beginning of ſpring ſown in boxes of the ſame compoſt uſed for the roots; till October they muſt have the morning ſun only, from that time to March they muſt be ſet open to the noon ſun, and during ſummer they muſt be placed ſo as to have only the morning ſun again. The earth when too dry muſt be gently watered, and moſs and weeds cleared off with care; after two years the roots muſt be taken out of this mould, and planted at four inches diſtance in a bed of the ſame compoſt. When they flower there will be found a great variety among them, many will be inferior to thoſe from which the ſeeds were ſaved, and many much finer. The ordinary kinds may be planted out in different parts of the garden, and the fineſt in a bed by themſelves.

Great Orange NARCISSUS. This is an elegant variety of the former ſort. The root is a large bulb, and from its baſe ſends many long, thick fibres. The leaves are long, narrow, flat, pointed, and edged, and of a pale greyiſh green. The ſtalk is a foot high, and ſupports a ſingle flower: this burſts from an obtuſe, filmy ſcabbard, and is very large and extremely conſpicuous. The colour throughout is a ſtrong yellow, and, when the flower is perfect, there is in it a tinge of orange.

Culture of this Narcissus.

This Narciſſus is propagated in the ſame manner as the preceding one: nor is its culture in any thing different, except that it requires a mellowed ſoil, enriched with rotted dung, and about the time of its flowering wants more water.

Double Lemon NARCISSUS. The root of this plant is a bulb, ſomewhat oval in form, full of a ſlimy, whitiſh juice, and furniſhed at the baſe with many fibres. The leaves are numerous, long, moderately broad, obtuſe, and generally brown at the end, ſometimes alſo tinged with that colour along the edges, and elſewhere of a pale green. The ſtalk is flatted and edged, ſtriated, of a pale green, and a foot high. On its top is placed one large flower, which droops a little, and is of a delicate lemon yellow. The ſegments are long, obtuſe, waved at the edges, and diſpoſed in a wild and irregular manner. The ſmell is ſlight but not agreeable.

Culture of this Narcissus.

It is propagated by off-ſets from the roots, and theſe are to be treated in the manner already directed for the Gold-cupped Narciſſus.

Double Oriental NARCISSUS. This plant has a roundiſh root, large, and covered with a tough, brown ſkin: three or four leaves riſe from it, long, narrow, flat, or very little hollowed, of a blueiſh but agreeable green, and of a firm ſubſtance. The ſtalk is round, firm, upright, and fourteen inches high. At its top ſtands a very noble cluſter of flowers, ſix or more: each has its ſeparate foot-ſtalk an inch and a half in length, and theſe all riſe together from the head of the ſtalk, where they are originally incloſed with their flowers, in a green, flat ſcabbard. The flowers are large and elegant; their colour is a mixture of white, a faint, and a deeper yellow. Theſe are diſpoſed in various degrees and ſhadows; and in different flowers with a great deal of elegant variety. Sometimes there is very little of the white, and often none; but in that caſe the variety of yellows is ſtill pleaſing; the deepeſt colouring being in the middle, and the colour growing paler from thence outwards.

Culture of the NARCISSUS.

The following compoſt muſt be prepared for this plant.

Mix a barrow of fine mould from an upland paſture, with a buſhel of wood-pile earth; a peck of ſand, two quarts of ſea-water, or, in want of that, of brine; and a quarter of a peck of ſheep's dung.

In this ſow the ſeeds or propagate the parted roots in the manner directed for the other ſorts.

Great White NARCISSUS. This is a very elegant and noble flower, hardy enough to bear the worſt ſeaſons with us. The root is roundiſh, covered with a brown outer ſkin, and hung with many large and long white fibres from the baſe. The leaves are broad, eight inches long, obtuſe, and of a pale green, with a tinge of bluiſh. The ſtalk is fifteen inches high, pale and erect. The flowers burſt together from the top of it, where they are at firſt incloſed in a ſlight ſcabbard; and each has its ſeparate long foot-ſtalk. They are large and elegant; the petals oblong, expanded, and of a pure white; and the nectarium ſmall, and lightly tinged with yellow: it is waved at the edge, and the yellow is in different flowers variouſly diſpoſed, and in different degrees of ſtrength; but in the moſt delicate ſtate it is pale.

Culture of this NARCISSUS.

The plant is a native of the ſouthern parts of Europe, and of the Eaſt: it flouriſhes naturally in a deep rich ſoil, where there is ſome ſhade and moiſture. It has been much improved from the wild ſtate in our gardens; and we have been long accuſtomed to receive the roots from Holland. This plant is uſually raiſed from off-ſets; but the beſt method of producing it is from ſeeds, for the flowers from the off-ſets are limited to the few original kinds; and they will degenerate even from the full beauty of theſe after a certain time. On the other hand, thoſe raiſed from ſeeds, will have the choice of innumerable variations in the colouring of the cup, and fullneſs of the petals. The beſt of which may be preſerved in beds raiſed for that purpoſe; and the others planted out in common borders, will add greatly to their beauty. In both caſes the management is to be the ſame with that we have directed for the other kinds.

Poetic NARCISSUS. The root is a roundiſh bulb, hung at the baſe with many long fibres. They are long, moderately broad, and of a pale green. The ſtalk is naked, hollow, flatted a little, and edged; and at its top ſupports a ſingle and very elegant flower: this naturally droops a little, it is formed of ſix petals, with a nectarium of a rounded form, ſhort and waved at the edge. The petals are ſnow-white; but in the center of the flower there is an elegant crown of red, with a fringed edge; beneath this a white, and beneath that again a yellow circle.

Culture of this NARCISSUS.

The culture of this ſpecies is the ſame with the other kinds, only that there ſhould be an addition of marle to the compoſt; if that cannot be had, a mixture of pond-mud and cow-dung muſt be uſed in its place; and when this has been expoſed to the winter's froſts, it muſt be added to the reſt.

The ſeeds muſt be ſaved from thoſe plants which have the red circle fineſt in the flower, and a ſecond time from the fineſt of thoſe which have been produced from ſuch original ſowing. Thus the flower will attain its greateſt perfection; and if ſome of the roots be annually planted later than the others, and in a place not much expoſed to the ſun, there will be a continuation of the flowers a long time in beauty. The roots muſt be allowed a freſh bed of compoſt every year.

Silver and Gold NARCISSUS. The root is roundiſh, compoſed of many coats, and full of viſcid juice. The leaves are numerous, long, narrow, obtuſe, and of a pale blueiſh green. The ſtalk is upright, a foot high, ſomewhat flatted, edged, and hollow, and it bends at the top with the weight of one flower: this burſts from an oblong, leafy ſcabbard, and is compoſed of ſix petals, and a very large cup. The petals are of a very delicate ſhining ſilvery grey, and the cup yellow. This is the natural colouring, but ſometimes the yellow runs in light variegations among the grey, and often the grey in the ſame manner ſpreads itſelf among the yellow; either way the colouring is extremely ſingular and beautiful. The cup, which is very large, is double and divided alſo in various manners; ſometimes the body is entire, and ſometimes the whole is cut and divided down to the bottom.

Culture of this NARCISSUS.

This is a variety from ſome of the large ſingle Narciſſus's, which, when once obtained, muſt be encreaſed by off-ſets. Theſe ſhould be taken off every year when the roots are taken up, and new compoſt muſt always be allowed. The old root will by this be kept vigorous, and will flower in its full beauty many years; and the off-ſets, as they will be too ſmall to blow at firſt, muſt be planted in a nurſery-bed at four inches diſtance to gather ſtrength, and afterwards removed into the garden.

Autumnal NARCISSUS, a ſpecies of Amaryllis. See the article AMARYLLIS.

NAVELWORT, *Cotyledon*, a genus of plants ranged by Linnæus among the *decandria pentagynia*, and of which there are ſix ſpecies. 1. Navelwort with roundiſh, plane, intire leaves. 2. Navelwort with ſemiglobular leaves. 3. Navelwort with oval crenated leaves, and a ſpiked ſtalk. 4. Navelwort with oblong pointed leaves ending with a ſpine, and a ſpiked ſtalk. 5. Navelwort with hooded leaves ſharply indented, and growing alternate, and a branching ſtalk with erect flowers. 6. Navelwort with cut leaves, and four pointed flowers.

The firſt and ſecond ſpecies are ſhrubby plants, and natives of the Cape of Good Hope. They flower in the months of July and Auguſt, but never ripen ſeeds in this country.

The third ſpecies is a biennial plant, and grows naturally in Crete and Siberia. The fourth is alſo a native of Siberia.

The fifth ſpecies grows upon old walls and other buildings in many parts of England and Portugal, and is ſeldom cultivated in gardens.

The ſixth ſpecies is a native of Egypt. It is a ſhrubby plant, and requires a warm ſtove to preſerve it through the winter in this country; nor ſhould it be expoſed abroad in ſummer, but kept in the ſtove, or placed in an airy glaſs caſe.

Culture of the NAVELWORT.

The firſt and ſecond ſpecies are propagated by cuttings, which may be planted during any of the ſummer months; but the cuttings ſhould be laid in a dry place, for a week or more before they are planted, that the wound may heal over.

The proper compoſt for theſe plants is one third light freſh earth from a paſture, one third ſand, and the other third part lime rubbiſh, and rotten tan, in equal quantities. Theſe muſt be well mixed, and laid in a heap ſix or eight months before it is wanted, turning it over five or ſix times, that the parts may the better incorporate; and before it is uſed it will be proper to paſs it through a ſcreen.

Fill as many ſmall pots with this compoſt as you have cuttings, and place one in the center of each pot, about two inches deep, or more, according to their ſtrength, then give them a gentle watering, and ſet the pots in a warm ſhady place for about a week, after which they ſhould be plunged into a moderate hot-bed of tanners-bark, obſerving to give them air by raiſing the glaſſes as often as the weather will permit, and ſhading them in the heat of the day.

In about a month after planting, theſe cuttings will have taken root, and then they ſhould by degrees be expoſed to the open air; firſt drawing the pots out of the tan, and ſetting them on the top; then raiſing the glaſſes very high in the day-time; in about a week after rooting, they may be removed into the green-houſe, and there ſtand to harden for another week; after which they may be placed in the open air in a well defended ſituation, taking care not to have them too much expoſed to the ſun, till they have been inured to the air for ſome time. In this place the plants may remain till the beginning of October, at which time they ſhould be removed into the green-houſe, where they muſt be placed near the windows, and allowed as much free air as the ſeaſon will permit; giving them very little water. In winter they ſhould be placed in a moderate ſtove, and not ſet abroad till midſummer.

The third ſpecies is propagated by ſeeds, which if ſown on a wall will thrive better than in the ground, ſo that where the ſeeds ſcatter themſelves in ſuch ſituations, the plants thrive better than when they are cultivated.

The fourth ſpecies is propagated by off-ſets; and when the plants come up, they only require to be kept clear from weeds. They ſucceed beſt in a ſhady ſituation.

If the ſeeds of the fifth ſpecies are permitted to ſcatter upon old walls, and other buildings, they will thrive much better than when ſown in the ground.

The ſixth ſpecies is propagated by cuttings, which in ſummer ſhould be planted in ſmall pots, and plunged into a moderate hot-bed; when they have taken root they muſt be removed into the ſtove, where they are always to remain. They ſhould have but little water, eſpecially in winter.

Venus NAVELWORT, a ſpecies of Hound's Tongue. See the article HOUND'S TONGUE.

NAVEW. See the article RAPE-SEED.

NECTARINE, a ſpecies of the Peach-Tree. See the article PEACH-TREE.

NECTARIUM, expreſſes what is ſometimes a part of the corolla; and ſometimes, though rarely, the whole. It is a part deſtined for the reception of the honey-juice of the plant, and is very various in its figure. Sometimes it is only a hollow in a petal; ſometimes it is a little ſquama; ſometimes a tubercle, and ſometimes a plain tube.

Adam's NEEDLE. See the article ADAM'S-NEEDLE.

NEP, or CAT-MINT. See the article CAT-MINT.

NEPENTHES, a genus of plants ranged by Linnæus among the *gynandria tetrandria*, of which there is only one ſpecies.

This plant is a native of the Eaſt Indies. It has a thick brown root, furniſhed with many fibres of a reddiſh colour. The ſtem is two feet high, round and firm, and is in many parts tinged with a faint purple. The leaves have no foot ſtalks: they are oblong, moderately broad, highly ribbed, and furniſhed each with a kind of veſſel at its extremity. The leaf itſelf, which is narrow at the baſe, grows broader toward the middle, and thence decreaſes gradually; but where it might be expected to terminate, the long point is continued in a ſort of horn. This hangs down for a conſiderable length, ſwelling very gradually in thickneſs, and from this loweſt part turns up again, expanding into a hollow veſſel, three inches long, and half an inch in diameter, terminating in a large opening, which is covered with a kind of lid, all of one piece, and ending in a narrow, ſlender tail. This veſſel is filled with a clear well-taſted water: its colour is at firſt a whitiſh green, afterwards it becomes yellow, and at laſt purpliſh. The little piece falls over it very cloſe while ſmall, but when it is of the full bigneſs, and replete with the water, it gapes, and in the end the weight of the liquor bears down the veſſel, it runs out, and then the part fades.

The flowers terminate the ſtalk in conſiderable numbers: they are placed on ſhort foot-ſtalks, and their colour, when in perfection, is of a faint yellow or green; ſometimes they are of a pale red, and at others whitiſh. The cup, for there are no petals, is formed of a ſingle piece, which is divided deeply into four oval ſegments; theſe ſtand wide expanded, and reſemble ſo many petals by their colouring as well as form. In the centre riſes a ſhort ſtyle, terminated by an obtuſe top; and upon its ſummit are placed four filaments, ſo very ſhort, that they are only diſtinguiſhed by their buttons. The ſeed-veſſel is columnar, oblong, angulated, and marked by four ridges. Theſe ſhew the joinings of four valves, of which it is compoſed, and it opens in four places. The ſeeds are numerous and light.

Culture of the NEPENTHES.

It is propagated by ſeeds, which ſhould be procured from Ceylon, or other places where the plant is native, and ſown in pots filled with the following compoſt. A quantity of rich garden-mould, with one third part from under a wood-pile, a little marle, and as much harſh-ſand: a quart of each of theſe laſt ingredients will be enough for a buſhel of the whole.

Set the pots up to the rim in a bark-bed of moderate heat, and refreſh the mould when dry with a gentle watering. When the young plants appear water them gently and frequently: pull up the weakeſt, and leave only four or five in each pot; here let them get ſome ſtrength, then fill ſome more pots with the ſame compoſt, and ſet one of the plants upright in each. Plunge the pots up to the rim in a bark-bed, and ſhade them with mats drawn over the glaſſes till they are well rooted: after which let them have a little air in the middle of mild days: and when they have ſtood about three weeks in this place, place them in the ſtove, where they muſt always remain.

NERVES, are tough, long ſtrings, which run either acroſs or lengthways, in the leaves of a plant.

NETTLE, *Urtica*, a genus of plants, ranged by Linnæus among the *monoecia tetrandria*: of which he diſtinguiſhes twelve ſpecies, moſt of them common weeds in this country: and as the reſt are ſeldom preſerved, except for the ſake of variety, it will only be neceſſary to mention the one ſpecies which is commonly kept in our gardens; *viz.* Nettle, with oppoſite leaves, and the fruit bearing amenta globoſe, commonly called the Roman Nettle.

It is an annual plant, and grows naturally in ſeveral parts of Europe.

Culture of the NETTLE.

There are two varieties of this plant, which may be eaſily propagated by ſowing the ſeeds in March upon a bed of light earth. When the plants are come up they ſhould be tranſplanted to the places in which they are deſigned to remain, after which they will require no other care but to be kept clear from weeds; and if they are permitted to ſhed their ſeeds, they will grow without further culture.

Dead NETTLE, or ARCHANGEL, *Lamium*, a genus of plants, of which there are ſeveral ſpecies, ſome of them are common weeds in this country, others are only admitted into botanic gardens for the ſake of variety, and the two following are the only ones cultivated in other gardens; *viz.* 1. Eaſtern Dead Nettle. 2. Mountain Dead Nettle, with a balm leaf.

The firſt ſpecies grows naturally in the Archipelago. The ſtalks riſe eight or nine inches high. The leaves are ſmooth, heart-ſhaped, and ſpotted with white, which make a very pretty appearance during winter. The flowers are white, and grow in whorls round the ſtalks; they appear in April, and the ſeeds ripen in June.

The ſecond ſpecies is a native of Portugal. It riſes with a ſtrong, ſquare, erect ſtalk, a foot and a half high. The leaves are large, heart-ſhaped, veined, and deeply ſawed on their edges. The flowers are very large, of a deep purple colour, and grow in whorls round the ſtalks at every joint. Thoſe on the lower part of the ſtalk appear the beginning of May, they are ſucceeded by others above, ſo that there is a continuance of flowers upon the ſame ſtalk for near two months.

Culture of the Dead NETTLE.

If the firſt ſpecies is permitted to ſcatter its ſeeds the plants will come up in autumn, and thrive better than when ſown by hand: they only require to be kept clear from weeds. The ſecond ſpecies is propagated by parting of the roots: the proper time for this is in October, but they muſt not be tranſplanted oftener than every third year, if they are required to flower ſtrongly, for the great beauty of this plant conſiſts in the number of its ſtalks, which are always proportional to the ſize of the roots, for ſmall ones will put out one or two ſtalks only, whereas the large ones will have eight or ten. Theſe plants thrive beſt in a ſoft, loamy ſoil.

Shrubby Hedge NETTLE, *Praſium*, a genus of plants, of which there are only two ſpecies. 1. Shrubby Hedge Nettle, with oval leaves, which are indented on every ſide. 2. Shrubby Hedge Nettle, with oblong, oval, ſawed leaves.

The firſt ſpecies is a native of Sicily, and the ſecond of Spain and Italy.

Culture of the Shrubby Hedge NETTLE.

Theſe plants may be propagated either by cuttings, or from ſeeds: if they are propagated by cuttings they ſhould be planted on a ſhady border towards the end of April. When they are well rooted they may be tranſplanted into the places where they are to remain, or into pots, that they may be ſheltered in winter under a common frame, where they may be protected from the froſt, and have as much free air as poſſible in mild weather.

The cuttings ſhould be taken from plants which have been expoſed to the open air, whoſe ſhoots are ſhort and ſtrong; and if a joint of the former year's wood is cut to each of them, they will more certainly ſucceed.

If theſe plants are propagated by ſeeds, they ſhould be ſown on a bed of light earth in April. In May the plants will come up, when they require no other care than that of keeping them clean from weeds, and in the autumn following they may be tranſplanted in the manner already directed for thoſe raiſed from cuttings.

NETTLE-TREE. See the article LOTE-TREE.

NIGHT-SHADE, *Solanum*, a genus of plants, ranged by Linnæus among the *pentandria monogynia*: of which moſt botaniſts enumerate a vaſt number of ſpecies, but the above writer has reduced them to the twenty-three following. 1. Night-ſhade, with a ſhrubby, unarmed ſtalk, oval, hairy, entire leaves, and compound umbels. 2. Night-ſhade, with a ſhrubby, unarmed ſtalk, oval, entire leaves, and thread-like foot-ſtalks to the flowers, proceeding from the ſides of the branches. 3. Night-ſhade, with a ſhrubby, unarmed ſtalk, ſpear-ſhaped leaves, turning inward, and umbels ſitting cloſe to the ſtalks. 4. Night-ſhade, with a ſhrubby, unarmed ſtalk, leaves growing in pairs, one of which is bigger than the other, and cymoſe flowers. 5. Night-ſhade, with a ſhrubby, bended, and unarmed ſtalk, the upper leaves ſpear-ſhaped, and bunches of flowers at the top of the ſtalk, commonly called Bitter-ſweet. 6. Night-ſhade, with a ſhrubby, bended, and unarmed ſtalk, oblong, ſinuated leaves, at the ſides of the ſtalk, and bunches of flowers at the top of the ſtalk. 7. Night-ſhade, with a ſhrubby, almoſt unarmed ſtalk, and wedge-ſhaped, ſinuated leaves, turning backward. 8. Night-ſhade, with an herbaceous, unarmed ſtalk, and entire, winged leaves. 9. Night-ſhade, with an unarmed, herbaceous ſtalk, cut, winged leaves, and ſingle bunches of flowers, or Pomum amoris. 10. Night-ſhade, with an herbaceous, unarmed ſtalk, cut, winged leaves, bunches of reflexed flowers divided into two parts, and hairy berries. 11. Night-ſhade, with an herbaceous, unarmed ſtalk, and heart-ſhaped leaves, turning inward. 12. Night-ſhade, with an unarmed, herbaceous ſtalk, oval, indented, angular leaves, and nodding umbels; or the common Night-ſhade of the ſhops, with a black fruit. 13. Night-ſhade, with an unarmed, herbaceous ſtalk, oval, hairy, intire leaves, and prickly cups; or the Melongena, Mad-apple, or Egg-plant. 14. Night-ſhade, with a prickly, herbaceous ſtalk, heart-ſhaped, ſinuated leaves, and prickly cups. 15. Night-ſhade, with a prickly, herbaceous ſtalk, and heart-ſhaped leaves with five lobes, hairy, and prickly on both ſides, commonly called Batchelor's Pear. 16. Night-ſhade, with a prickly, herbaceous ſtalk, winged leaves, ſinuated, obtuſe ſegments, and prickly cups. 17. Night-ſhade, with a prickly, ſhrubby ſtalk, angular, woolly, intire leaves, prickly on both ſides, and unarmed cups. 18. Night-ſhade, with a prickly, ſhrubby ſtalk, ſpear-ſhaped, angular leaves, prickly on both ſides, and looſe bunches of flowers. 19. Night-ſhade, with recurved thorns on the ſtalks, and ſinuated leaves, downy on their under-ſide, prickly on both ſides, and the foot-ſtalks of the flowers prickly. 20. Night-ſhade, with a prickly, ſhrubby ſtalk, leaves turned inſide, and prickly cups. 21. Night-ſhade, with a prickly, ſhrubby ſtalk, heart-ſhaped, hairy leaves, turned in at the brim, and unarmed cups. 22. Night-ſhade, with a prickly, ſhrubby ſtalk, and ſpear-ſhaped, angular, indented leaves. 23. Night-ſhade, with a prickly, ſhrubby ſtalk, ſmooth, obtuſe, unarmed leaves, with three lobes.

Theſe plants are natives of Europe, Aſia, Africa, and America, but moſt of them grow naturally in America.

Culture of the NIGHT-SHADE.

The firſt, ſecond, eighth, ninth, tenth, and eleventh ſpecies are propagated by cuttings, which when planted muſt be cloſely covered with a bell or hand-glaſs, and ſhaded from the ſun till they have taken root, after which they ſhould be treated in the manner of other tender exotics. They require a ſtove in winter, and muſt not be expoſed abroad above ten or twelve weeks in the warmeſt part of the ſummer.

The third, fourth, fifteenth, and ſixteenth ſpecies are propagated by ſeeds, which ſhould be ſown upon a pot of rich earth in the ſpring, and plunged into a moderate hot-bed, obſerving to water them conſtantly. When the plants are come up they ſhould be planted in a gentle hot-bed, covered with rich earth, about ſix inches deep, allowing them ſix inches diſtance every way; the bed muſt be arched over with hoops, and covered with mats. The plants muſt be frequently watered, and when they have acquired ſtrength, and the ſeaſon becomes favourable, let them be inured by degrees to bear the open air, to which they ſhould be fully expoſed in June: then let them be taken up with a ball of earth to the root of each plant, and placed ſeparately in pots filled with rich earth; theſe pots muſt be placed in a ſhady ſituation, and muſt be frequently watered till the plants have taken new root, after which they may be removed to a more open expoſure, and placed among other exotic plants. In dry weather they muſt have frequent waterings, and in winter they ſhould be removed into the green-houſe, where in mild weather they muſt have as much free air as poſſible.

The fifteenth and ſixteenth ſpecies are annual plants, but the plants of the third and fourth ſhould be ſhifted about the end of April, annually, and their roots pared round, cutting off all the mouldy fibres: then plant them each into a pot filled with freſh, rich earth.

The fifth ſpecies is eaſily propagated by laying down the branches, or planting cuttings in the ſpring, upon a moiſt ſoil, where they will ſoon take root, and may be afterwards removed to the places where they are deſigned to remain.

The ſixth and ſeventh ſpecies are propagated by cuttings, which ſhould be planted in a ſhady border during any of the ſummer months. After they have taken root, let them be planted each in a ſeparate pot, which muſt be placed in the ſhade till the plants have taken new root, and in winter removed to the green-houſe.

The other ſpecies are all propagated by ſowing their ſeeds early in the ſpring upon a good hot-bed. When the plants are come up, they ſhould be tranſplanted each into a ſeparate ſmall pot, filled with light rich earth, and plunged into a freſh hot-bed, till they have taken new root, after which they may be treated like the firſt ſpecies.

American NIGHT-SHADE, *Phytolaeca*, a genus of plants, ranged by Linnæus among the *decandria decagynia*, and of which there are only two ſpecies. 1. American Night-ſhade, with entire leaves. 2. American Night-ſhade, with ſawed leaves.

The firſt ſpecies grows naturally in Virginia, and Mexico; and the ſecond is a native of Malabar.

Culture of the American NIGHT-SHADE.

Theſe ſpecies are both propagated by ſeeds, which ſhould be ſown in ſpring upon a moderate hot-bed. When the plants come up, they ſhould be tranſplanted on another hot-bed to bring them forward, obſerving to ſhade them from the ſun till they have taken new root; after which they ſhould be treated as tender exotic plants; and in July tranſplanted into a warm border, or into pots filled with light earth. When they have taken root, let them be moderately watered, and kept clean from weeds, which is all the care they require.

Climbing NIGHT SHADE, *Baſella*, a genus of plants of which there are only two ſpecies. 1. Climbing Nightſhade with heart ſhaped leaves. 2. Climbing Nightſhade with oblong blunt leaves.

Theſe plants are natives of the Eaſt Indies. They climb to a conſiderable height, and require ſupport; and ſhould therefore be trained up to a trelliſe, or faſtened to the back of the ſtove, where their ſtalks and leaves, which are of a deep purple colour, will make a very handſome appearance.

Culture of the Climbing NIGHT-SHADE.

Theſe plants are propagated by ſeeds, which ſhould be ſown on a hot-bed in the ſpring; and when the plants are fit to remove, they ſhould be each planted into a ſeparate pot, and plunged into a moderate hot-bed of tanners-bark, where they muſt be treated in the ſame manner as other tender exotics.

They may alſo be propagated by cuttings, which ſhould be planted in pots, and plunged into a moderate hot-bed of tanners-bark, where they will take root in a fortnight or three weeks, when they ſhould be treated in the ſame manner as the ſeedling plants.

Deadly NIGHT-SHADE, *Atropa*, a genus of plants ranged by Linnæus among the *pentandria monogynia*, and of which there are three ſpecies. 1. Deadly Nightſhade with an herbaceous ſtalk, and oval intire leaves, or the common Deadly Nightſhade. 2. Deadly Nightſhade with ſinuated, angular leaves, and cloſe acute-angled cups. 3. Deadly Nightſhade with a ſhrubby ſtalk.

The firſt ſpecies is a native of England, and Auſtria, but is ſeldom admitted into gardens on account of its poiſonous quality.

The ſecond ſpecies grows naturally in Peru, and the third in Spain.

Culture of the Deadly NIGHTSHADE.

The ſecond ſpecies is propagated by ſeeds, which ſhould be ſown in pots filled with light earth, and plunged into the bark-bed of the ſtove, where they muſt always remain.

The third ſpecies is alſo propagated by ſeeds, which muſt be ſown in the ſpring upon a very moderate hot-bed. When the plants will bear to be removed, let them be planted each in a ſeparate ſmall pot filled with loamy earth, and ſhaded till they have taken root; after which they may be placed with other hardy exotic plants in a ſheltered ſituation, and in October removed into the green-houſe.

NONE-SO-PRETTY, a ſpecies of Saxifrage. See the article SAXIFRAGE.

NONE-SUCH, a ſpecies of the Lychnis. See the article LYCHNIS.

NORTHERN ASPECT, is the leaſt favourable of any in England for bringing fruit to perfection. The only trees proper for this ſituation are the morello cherries; the duke cherries, and ſome ſorts of ſummer pears. Red and white currants may alſo ſucceed; and it will be a means of having a ſupply of that fruit, after thoſe which are expoſed to the ſun are gone.

NOSE-BLEED, *Achillea*. See the article ACHILLEA.

NOVEMBER, the eleventh month of the year.

In the *Flower-garden*, if the weather be mild, continue about the beginning of this month, to work upon the ground, and prepare and manage the more hardy plants; when it is more ſevere, defend the tenderer kinds by ſheltering them with mats, ſtraw, or other covering. In the very bad weather, clean ſeeds, and prepare tools and inſtruments for a better ſeaſon. If the weather continues mild, clear the ground, and finiſh the autumnal plantations. Break the ſurface of borders, and rake them afreſh, even where they appear already clean, to deſtroy the moſs that ſpreads over them. Plant perennial flowers where they are wanted. Some of the Campanulas may yet be planted ſafely, alſo the hardier of the Monkhood kind, and the Pionies, the tall Speedwells, the Doronicum, the Tanſier, Fumitory, and ſome others. Plant alſo flowering ſhrubs in favourable ſoils. There are ſome few plants which will keep their flowers throughout this month, in the open air; theſe muſt be taken great care of. Let the gravel be often rolled, and the ground lightly raked over the naked beds, till the time of the plants ſhooting. Look over, and cheriſh the plants, which continue yet with ſome flowers on them. Toward the end of the month, let the gardener prepare his ſeveral compoſts. If the weather is tolerably mild, look to ſuch parts of the garden as are planted with clumps of ſhrubs, or any other where there are ſhrubs or ſmall trees. Go through the ground, to prune and ſet right thoſe in any part where it may have been omitted at an earlier ſeaſon, or where ſome accident may have rendered it needful now. Then clear the ground, raking off the rubbiſh, and cutting down the decayed ſtalks of plants. Dig up the ground between the ſhrubs, and when the earth is well broken, take off the dead leaves, and draw ſome mould about the roots.

In the *ſeminary*, finiſh the buſineſs of tranſplanting the beginning of this month. See that the ſtakes are ſecure which ſupport the new-planted trees. Scatter ſome peaſe-haulm about their roots, and preſs it down by ſtones. Let the ground intended for the ſpring-plantation be thrown up in ridges. Let it be dug deep; and once a month, for the whole winter, when the weather permits, let it be broke again, and expoſed with a new ſurface. The growth of the nurſery are to be protected from the froſts in the ſame manner as the product of the flower-garden, though in a different degree. The beds of ſeedling ſhrubs, or of perennial flowers of a tender nature, muſt be defended from the enſuing rains and froſts, by hoops and mats, or cloths: but let care be taken, in the mean time, not to make them too tender; let the hoops that defend the beds ſtand high, and the mats never be drawn over them but in very bad weather, and even at the worſt, let them have ſome air, at thoſe hours when it is well warmed by the ſun. This is the practice for thoſe ſeedlings that have ſome height, and it may be uſed alſo to cuttings of the tendereſt kinds that are ſet in this part of the ground. For thoſe beds in which the plants are but ſhooting, or have very little height, the beſt defence is a covering of long dry ſtraw, which muſt be taken off again when the weather is better. Clear the weeds from the beds of ſeedling flowers, which were not ready for removal the laſt ſeaſon. Then taking advantage of a mild day, the ſurface muſt be raked over, and the whole being levelled, ſome very rich and well-mellowed dung from a melon-bed muſt be ſcattered thinly over. Let the gardener look after his ſeed-beds of the larger kind; if the earth cracks, let him ſcatter a little more mould, and lay over it ſome light covering; he muſt alſo keep his traps baited for vermin.

In the *Fruit-garden*, the firſt thing to be done this month is to gather the grapes properly, which is the firſt ſtep towards their preſervation; the ripeneſs of the grapes is known by their clearneſs on the bunch, as well as by their ſoftneſs and mellow flavour. If it happens in any favourable ſeaſon that the latter kinds ripen thoroughly before the froſts, they muſt be then cut for preſerving. Quinces and medlars will now require to be cleared from the trees, and a proper method conſidered for preſerving them. Continue pruning with due care and aſſiduity; and the laſt ſort of grapes having been now gathered, the vines ſhould be pruned. The gardener is now to go over the young branches, with a careful hand, and to pick off all the late fruit. After this, if the froſts ſet in ſevere towards the end of the month, let a good quantity of old peaſe-ſtraw be hung upon the tree, ſo thick as to ſhelter the young wood, but not ſo cloſe as to ſhut out the air. Clear, refreſh, and enrich the ſtraw-berry beds. Let the alleys between the beds be dug up a full ſpit deep, and the mould well broken. Look to the ſtandard apple-trees, whether dwarfs in the garden, or planted in the orchard. Moſs muſt be cleared off their ſtems: if two branches croſs or crowd one another at the extremities, let one of them be taken off, or thinned in that part. If on any part there be looſe pieces of decayed bark, let them be taken away, and the place clean wiped. Wherever there is a piece of the bark rotten, let it be cut away to the quick, and wherever a large branch is cut off, the place muſt be ſo contrived that wet cannot lodge upon it: if cut with a ſaw it muſt be pared even with a chiſſel, and made to ſlope downwards. Very old boughs ſhould always be taken from apple-trees. Let the ground be well weeded, and as often as occaſion requires enriched with manure or tillage. Go round the new-planted trees, and ſee that all remain ſecure, and ſcatter a little haulm, or ſome other covering upon the earth, about the bottom of the ſtems.

In the *Kitchen-garden.* The cauliflower-plants and lettuces, preſerved from froſt by glaſſes, muſt not be buried from the air, which ſhould be admitted in warm and ſerene days, from eleven o'clock till four; and when the weather is more ſevere, let the glaſſes be raiſed a little at the ſides to admit the free air, about the warmeſt time of the day. If the froſts come on, ſcatter a little long dry ſtraw over the beds of young radiſhes. That part of the kitchen-ground which is to be ſown in ſpring, ſhould have the joint aſſiſtance of tillage and manure. Take the advantage of a dry day, and open a few trenches in ſome ſheltered part of the ground for peaſe. Plant more beans. Go over the ground where the forward crops of theſe two kinds were planted, break the earth between the rows, and draw it up about the ſtalks. The roots which will be required for the ſervice of the table, ſhould now be taken up and preſerved. Let the gardener take care that the reed fences are ſecure as well as the outer fences. Hot-beds muſt be kept up in a moderate temper, and as plants are apt to grow mouldy in them, let the glaſſes be opened as often as poſſible in the middle of the day, ſince the want of air is the occaſion of mouldineſs in the plants. Look over the ſeeds which will be required in the ſpring, and perfectly clean them; look over the tools, repair, and put them in good order.

NURSERY, or SEMINARY, is a piece of land ſet apart for raiſing and propagating all ſorts of trees and plants, to ſupply the garden and other plantations.

In a nurſery of fruit-trees, the following rules are to be obſerved.

Firſt, that the ſoil ſhould not be better than that in which the trees are to be planted out for good.

Secondly, that it ought to be freſh, and not ſuch as has been already worn out by trees, or other large growing plants.

Thirdly, it ought neither to be too wet nor too dry, but of a middling nature; though of the two extremes dry is to be preferred, becauſe, though trees in ſuch a ſoil do not make ſo great a progreſs, yet they are generally ſounder, and more diſpoſed to fruitfulneſs.

Fourthly, it muſt be incloſed in ſuch a manner that neither cattle nor vermin may come in: and ſo as particularly to exclude hares and rabbits, which, when the ground is covered with ſnow, are great deſtroyers of young trees.

Fifthly, the ground being incloſed ſhould be carefully trenched about two feet deep: this muſt be done in Auguſt, that it may be ready for receiving young ſtocks at the ſeaſon for planting, which is generally about the beginning of October; in trenching the ground great care muſt be taken to cleanſe it from the roots of all noxious weeds.

Sixthly, the ſeaſon being come for planting, level down the trenches as equal as poſſible, and then lay out the ground into quarters, which may be laid out in beds for a ſeminary, in which you may ſow the ſeeds or ſtones of fruit.

Seventhly, provide yourſelf with ſtocks, and the next year proceed to tranſplant them in the following manner: draw a line acroſs the ground intended to be planted, and open a number of trenches exactly ſtraight: then take the ſtocks out of the ſeed-beds, in doing which, you ſhould raiſe the ground with a ſpade, in order to preſerve the roots as intire as poſſible; prune off the very ſmall fibres, and if there are any that have a tendency to root directly downwards, ſuch roots ſhould be ſhortened. Then plant them in the trenches, if they are deſigned for ſtandards, in rows four feet from each other, and a foot and a half diſtant in the rows; but if for dwarfs, three feet row from row, and one foot in the row will be a ſufficient diſtance. Theſe plants ſhould by no means be headed or pruned at top, which will weaken them, and cauſe them to produce lateral branches. If the winter ſhould prove very cold, lay ſome mulch on the ſurface of the ground near their roots, taking care not to let it lie too thick near the ſtems of the plants, and to remove it as ſoon as the froſt is over. In the ſummer ſeaſon deſtroy the weeds, and dig up the ground every ſpring between the rows. The ſecond year after planting, ſuch of the ſtocks as are deſigned for ſtandards, ſhould be ſuffered to grow five or ſix feet high before they are budded or grafted; for the manner of doing which, ſee the article INOCULATION and GRAFTING.

As to timber-trees Mr. Miller adviſes thoſe gentlemen who would have plantations in parks, woods, &c. to make nurſeries upon the ground intended for planting, where a ſufficient number of the trees may be left ſtanding after the others have been drawn out to plant in other places.

The ground intended for the flower-nurſery ſhould be well ſituated to the ſun, and defended from ſtrong winds by plantations of trees or buildings. The ſoil alſo ſhould be light and dry, eſpecially for bulbous-rooted flowers; for in this nurſery the off-ſets of all bulbous-rooted flowers ſhould be planted, and remain there till they become blowing roots, when they ſhould be removed into the pleaſure-garden, and planted either in beds or borders, according to the goodneſs of the flowers. Theſe flowers may alſo be raiſed in the nurſery from ſeeds. The ſeedling auriculas, polyanthuſes, ranunculuſes, anemonies, carnations, &c. ſhould be raiſed in this nurſery, where they ſhould be preſerved till they have flowered, when all thoſe ſhould be marked that are worthy of being tranſplanted into the flower-garden; this ſhould be done in their proper ſeaſons: for all theſe ſeedling flowers ought not indiſcriminately to be expoſed to public view in the pleaſure-garden, becauſe it always happens that there are great numbers of ordinary flowers produced among them, which will make there but an indifferent appearance.

NUT, *Nux*, a ſeed incloſed with an oſſeous epidermis, or hard, bony outerſkin, commonly called the ſhell.

NUT-TREE, or HAZEL. See the article HAZEL.

Bladder NUT, *Staphylæa*, a genus of plants, ranged by Linnæus among the *pentandria trigynia*: of which there are only two ſpecies. 1. Bladder Nut, with pinnated leaves; or the common wild Bladder Nut. 2. Bladder Nut, with trifoliate leaves.

The firſt ſpecies grows naturally in woods in ſeveral parts of England, but is cultivated as a flowering ſhrub in the nurſery-gardens. This has ſeveral ſhrubby ſtalks ariſing from the ſame root, which grow ten or twelve feet high, covered with a ſmooth bark, and divided into ſeveral branches, which are pithy. The leaves are winged, compoſed of two pair of oval lobes, terminated by an odd one; theſe differ greatly in ſize according to the ſtrength and vigour of the ſhrub. They are ſmooth, entire, and of a light green colour, ſtanding upon long foot-ſtalks; the flowers grow upon long, ſlender foot-ſtalks, which hang downward; theſe ſpring from the wings of the ſtalk near their extremities, and are diſpoſed in oblong bunches; they have each five oblong white petals, which expand in form of a roſe; theſe are ſucceeded by inflated capſules or bladders compoſed of three cells, one or two of which has a roundiſh ſmooth, hard ſeed, and the other are barren.

The ſecond ſpecies is a native of North America. It has a more ſubſtantial ſtalk than the firſt; the bark of the older branches and ſtalks is ſmooth, and of a grey colour; that of the young is of a light green, and very ſmooth; the leaves are by threes on each foot-ſtalk; the lobes are oval, ending in a point, and their edges are ſawed; they are of different ſizes, according to the age and ſtrength of the plants; they are ſmooth, and of a light green colour. The flowers grow from the ſides of the branches, in longer bunches than thoſe of the former ſort, but their foot-ſtalks are much ſhorter; the flowers are of a cleaner white, and their petals are larger, as are alſo the bladder capſules; the ſeeds are larger, and ripen better than thoſe of the common ſort.

Culture of the Bladder-Nut.

Both theſe ſpecies are uſually propagated by ſuckers from the root, which the firſt ſort ſends out in great plenty; theſe ſhould be taken from the old plants in autumn, and their roots trimmed, then planted in a nurſery, in rows at three feet diſtance, and one aſunder in the rows. In this nurſery the plants ſhould ſtand one or two years, according to their ſtrength, and then be tranſplanted to the place where they are to remain. The plants which are propagated in this manner, are very ſubject to put out ſuckers in greater plenty from their roots, than thoſe which are raiſed from ſeeds, or propagated by layers or cuttings, ſo are not to be choſen when the others can be had. If they are propagated by layers, the young branches ſhould be laid down in autumn, in the ſame manner as is practiſed for other trees and ſhrubs; theſe will have put out roots the following autumn, when they may be taken from the old plants, and planted in a nurſery, where they may grow one or two years to get ſtrength, and then be removed to the places where they are to ſtand. When they are propagated by cuttings, it ſhould be the ſhoots of the former year, and if they have a ſmall piece of the two years wood at the bottom, there will be more certainty of their ſucceeding; for as the young ſhoots are ſoft and pithy, they are very ſubject to rot, when they have no part of the old wood to them. They muſt be planted in autumn on a ſhady border, but muſt not have too much wet.

They may alſo be propagated by ſowing their ſeeds early in the autumn, in beds of light freſh earth; and when the plants are come up, they muſt be carefully kept clear from weeds, and in very dry weather they ſhould be refreſhed with water; in theſe beds they may remain till the October following, at which time they ſhould be carefully taken up, and planted in a nurſery, placing them in rows three feet aſunder, and the plants one foot diſtant in the rows; and, if the following ſpring ſhould prove very dry, it will be neceſſary to give them a little water, to encourage their taking root; after which they will require no farther care, but to keep the ground clear from weeds, and every ſpring to prune off irregular branches, and dig the ground between the rows, to looſen the earth, that their roots may the more eaſily extend. In this nurſery they ſhould remain two years, by which time it will be proper to tranſplant them out where they are to remain, the beſt ſeaſon for doing which is in autumn: when the ſeeds are ſown in the ſpring, the plants ſeldom come up till the following year.

Malabar NUT, a ſpecies of Juſticia. See the article JUSTICIA.

O.

OAK-TREE, *Quercus*, a genus of plants ranged by Linnæus among the *monoecia polyandria*, and of which he diſtinguiſhes fourteen ſpecies, and among them are the Ilex, or ever-green Oak, and the Suber or Cork-tree, two diſtinct genera according to former botaniſts.

As all the ſpecies of this genus are propagated in the ſame manner, it would be needleſs to deſcribe their ſpecific differences.

Culture of the Oak-tree.

All the ſorts of oaks are propagated by ſowing their acorns: and the ſooner they are put into the ground after they are ripe, the better they will ſucceed; the proper ſeaſon therefore is the beginning of November, by which time they will be fallen from the trees. The manner of ſowing the acorns, if deſigned for a ſmall plantation, or to be removed, is to prepare ſome beds of freſh earth, neither too ſtrong and heavy, nor too light and dry. In theſe beds you ſhould place the acorns in rows one foot aſunder, and about two inches diſtance in the rows, covering them two inches thick with the ſame freſh earth, obſerving to leave none of them uncovered, to entice the vermin, which may in a ſhort time deſtroy all the ſeeds.

In the ſpring when the plants begin to appear, you muſt carefully clear them from weeds, and if the ſeaſon proves dry, you ſhould allow them a little water. In theſe beds the plants ſhould remain till the following autumn, at which time you ſhould prepare a ſpot of good freſh earth, in ſize proportionable to the quantity of plants, which ſhould be well trenched and levelled: then towards the middle or latter end of October, you ſhould carefully take up the plants ſo as not to injure their roots, and plant them out in rows three feet aſunder, and eighteen inches diſtant plant from plant, obſerving never to ſuffer the plants to abide long out of the ground, for their roots would dry, and endanger the growth of the plants. When they are planted, you muſt lay ſome mulch upon the ground near their roots, to prevent the earth drying too faſt; and if the ſeaſon prove dry, you ſhould refreſh them with a little water. When the plants have taken root in this nurſery, they will require little more care than to keep them clear from weeds, and to dig the ground between the rows every ſpring; in doing which you ſhould cut off ſuch roots as extend very far from the trunk of the trees, which will render them better for tranſplanting again. You ſhould alſo prune off ſuch ſide branches as extend themſelves very far, and would retard the upright ſhoots; but you muſt, by no means, cut off all the ſmall lateral branches, ſome of which are abſolutely neceſſary to be left on, to detain the ſap for the augmentation of the trunk.

When theſe trees have remained in the nurſery three or four years, they will then be large enough to tranſplant to the places where they are to remain: for it is not proper to let them grow very large before they are planted out: the ſeaſon for which is in the autumn. When they are planted, the ſurface of the ground ſhould be mulched about their roots to prevent its drying too faſt. You muſt alſo ſtake them to prevent their being ſhaken and diſturbed by the winds, which would retard their rooting. In tranſplanting theſe trees, you ſhould by no means cut off their heads; all that muſt be done is only to cut off any bruiſed or ill-placed branches: but there can be no greater injury done to theſe trees than to ſhorten their ſhoots, which in that caſe often decay entirely, or at leaſt down to the next vigorous bud.

The trees thus raiſed and managed, will, if planted in a proper ſoil, grow to a conſiderable magnitude, and are very proper for a wilderneſs in large gardens, or to plant in clumps in parks, &c. but if they are deſigned for timber, it is by much the better method to ſow the acorns in the place where they are to remain; in order to which, you ſhould provide yourſelf in autumn with a ſufficient quantity of acorns, which ſhould be always taken from ſtraight, upright, vigorous, growing trees. Theſe ſhould be gathered from under the tree as ſoon as may be after they are fallen, and if poſſible in a dry time, laying them in ſome open room to dry, after which they may be put in dry ſand, and preſerved till the end of November; when you ſhould prepare the ground for planting them.

Holy OAK; or HOLLYHOCK. See the article HOLLYHOCK.

OAK *of Cappadocia*, a ſpecies of Gooſe-foot. See the article GOOSE-FOOT.

OAK *of Jeruſalem*, another ſpecies of Gooſe-foot.

OCTOBER, the tenth month of the year.

In the *Flower-garden.* Prepare the borders for making their beſt ſhew in the ſucceeding months of ſpring. The leaves of many plants which are to flower in ſpring, will make a pleaſing appearance, and give variety in autumn; theſe ſhould be kept in good order, and the ground between them cleared: whatever dead leaves there be upon them ſhould be taken off, and if any ſtraggle or fall irregularly, they ſhould be retrenched. Let all weeds be taken up, and the ground be raked ſmooth, where it is good, and refreſhed with ſome rotten dung and pond-mud, where it is exhauſted. Let ſuch flowers as yet retain their beauty be taken care of; draw up the earth about their ſtems, pick off decayed leaves, water them daily, and ſtir the earth at a diſtance round their roots. Keep the gravel clear of weeds, and when there is wet let it be well rolled. Where there is box wanting in the edgings let it be planted. The gardener muſt obſerve whether the diſtances at which his perennial roots are planted, will admit of any thing between them, and by what additions he may beſt give variety and fullneſs. Look to the pots of auriculas, if there be any dead leaves, pick them off; ſee no weeds or moſs riſe in the pots: and when all is thus cleared, let them be removed into ſhelter. Take the ſame courſe with the plantations of flowering ſhrubs, as with the borders. Let the gardener conſider whether a new border may be formed, an old one converted to a better uſe, or in any part of the ground an uſeful addition made. Viſit the beds of ſeedlings, for a ſucceſſion of bulbous-rooted flowers: clear them from weeds, and defend them from froſts; the weeds ſhould be pulled up by hand, and ſome fine earth then to be ſifted over them. Remove ſuckers from the roots of lilacs. Towards the end of this month prune roſes, honeyſuckles, and other flowering ſhrubs. Defend the ſeedlings in boxes from the cold winds, and give them all the advantage that they can have from the ſun.

In the *Seminary.* Many things will require to be planted about the middle of this month, and the ground muſt now be got ready for them. Stocks ſhould now be planted for grafting and budding. Secure trees newly planted from rocking with the wind by firm ſtakes, to which the trees ſhould be tied with a hay-band, or other ſoft ſubſtance. Round the ſtems of new-planted trees ſcatter a parcel of old woollen rags, torn into ſmall pieces: over theſe ſprinkle ſome good dung, and ſecure the whole by ſome brick-bats to prevent its being carried off by the wind. Many trees are now to be raiſed in the ſeminary, for the wilderneſs plantation.

In the *Fruit-garden*, prune gooſeberry and currant-trees. About the beginning of this month the ſame kind of management is to be continued to the raſberry-ground. Prune alſo apricots and nectarines. Let the winter-fruit be gathered for preſervation. Prune peach-trees about the end of this month.

In the *Kitchen-garden*, the Batterſea cabbages will be fit for planting at proper diſtances, where they are to ſtand, about the beginning of October. The hot-beds muſt now be made. The beds of mint and baum muſt be enriched for making a good appearance in ſpring. A parcel of cauliflower-plants ſhould be planted out for winter. The ſeedling aſparagus-beds muſt be protected from the froſt. Earth up celery about the end of this month. Raiſe young ſallading upon hot-beds under good ſhelter. Some purple and ſcarlet radiſhes ſhould now be ſown in places well ſheltered; and put into the ground a ſmall crop of beans and peaſe.

The *Green-houſe* plants muſt be removed into their ſhelter as the danger of cold approaches. Chuſe a dry day for bringing in tendereſt kinds, cleaning their ſtems, their branches, and the tubs and pots in which they are planted. Let a mixture of cow-dung and coal-aſhes be well wrought together, and ſprinkled over the ſurface of the earth in the pots and tubs. The hardier kinds, as they bear the air longer, ſo when houſed they require more of it: they muſt therefore through the winter, have as much as can ſafely be given them; they ſhould now and then have a little water, and they muſt be cleaned as well as the others.

There are a number of *Stove* plants which bear the ſummer out of doors, and thrive the better for it, but can by no means endure the firſt colds of our winter; theſe are to be removed out of the open air, on the firſt chillneſs: they ſhould not however be taken at once out of the open air into the ſtove, but firſt removed into the green-houſe, and about ten days after into the ſtove, when they ſhould be carefully looked over, that no decayed leaves remain upon them.

OLDENLANDIA, a genus of plants which has no Engliſh name, and there is only one ſpecies of it.

It is a native of the Weſt-Indies, and a low plant with many branches ſpreading upon the ground. The leaves are long, narrow, and placed oppoſite. The flower-ſtalk is about an inch long, and divides into three or four ſmaller foot-ſtalks, each ſuſtaining one ſmall white flower.

Culture of the OLDENLANDIA.

The ſeeds of this plant ſhould be ſown early in the ſpring on a hot-bed, and when the plants are come up they ſhould be tranſplanted on another hot-bed, or into ſmall pots, and plunged into a moderate hot-bed of tanners-bark, obſerving to water and ſhade them till they have taken root, after which time they muſt have a large ſhare of air in warm weather, and be frequently watered. With this management the plants will flower in June, and their ſeeds will ripen ſoon after, which ſhould be gathered from time to time as they ripen; for as the branches grow larger, ſo there will be freſh flowers produced till autumn, when the plants will periſh; but if the ſeeds are permitted to ſcatter in the pots, the plants will ſoon after appear, which will live through the winter, provided they are placed in the ſtove, and will flower early the following ſpring.

OLEANDER, or ROSE-BAY, *Nerium*, a genus of plants, ranged by Linnæus among the *pentandria monogynia*, and of which there are only three ſpecies. 1. Oleander, with linear, ſpear-ſhaped leaves, three at a joint. 2. Oleander, with ſpear-ſhaped, ovated leaves, and divaricated branches. 3. Oleander, with oval, acuminated foot-ſtalks.

The firſt ſpecies grows naturally in Greece: there are two varieties of this, one with white, the other with red flowers.

This riſes with ſeveral ſtalks to the height of eight or ten feet. The branches come out by threes round the principal ſtalks, and has a ſmooth bark, which in the red flowering is of a purpliſh colour, but in the white ſort has a light green bark. The leaves ſtand by threes round the ſtalks, upon very ſhort foot-ſtalks, and point upwards, of a dark green, very ſtiff, and end in acute points. The flowers grow at the ends of the branches in large looſe bunches, which are in one of a bright purple, or crimſon colour, and in the other they are of a dirty white: they have ſhort tubes, which ſpread open at the top, where they are deeply cut into five obtuſe ſegments, which are twiſted at bottom, ſo are oblique to the tube. This plant flowers in July and Auguſt, but the ſeeds ſeldom ripen well in this country.

The ſecond ſpecies is a native of India; this riſes with ſhrubby ſtalks ſix or ſeven feet high, which are covered with a brown bark. The leaves are ſtiff, from three to four inches long, and a quarter of an inch broad; they are of a light green, and their edges are reflexed; theſe are placed ſometimes by pairs oppoſite, at others they are alternate, and ſometimes by threes, round the branches. The flowers grow in looſe bunches at the ends of the branches; they are of a pale red, and have an agreeable muſky ſcent.

The third ſpecies is a native of both Indies; this is a ſhrubby plant, of ſix feet in height; the ſubſtance of the ſtem is tender, and its bark is brown. The young branches are green and juicy. The leaves are ſeven inches long, an inch broad; of a fine green on the upper ſide, and ſilvery underneath. The flowers are numerous, very large, and of a glorious purple; they grow in cluſters all over the upper part of the branches, and cover the plant with a moſt elegant colour.

Culture of the Oleander.

Theſe plants are propagated by layers, which ſhould be ſlit at the joint in the ſame manner as is practiſed in laying of carnations, which will greatly facilitate their taking root; if theſe branches are laid down in autumn, and are properly ſupplied with water, they will have taken root by that time twelvemonth, when they ſhould be carefully raiſed up with a trowel, and if they have taken good root, they ſhould be cut off from the old plant, and each planted in a ſeparate ſmall pot, filled with ſoft loamy earth; thoſe of the common ſort will require no other care, but to be placed in a ſhady ſituation, and gently watered as the ſeaſon may require, till they have taken new root; but the two other ſpecies ſhould be plunged into a very moderate hot-bed, to forward their taking root, obſerving to ſhade them from the ſun in the heat of the day. After the common ſort has taken new root, the plants may be placed in a ſheltered ſituation with other hardy exotics, where they may remain till the end of October, when they ſhould either be removed into the green-houſe, or placed under a hot-bed frame, where they may be protected from froſt in winter, but enjoy the free air at all times, when the weather is mild.

The other two ſorts, when they have taken new root, ſhould be gradually inured to bear the open air, into which they ſhould be removed in July, where they may remain till October, provided the weather proves mild; but during this time they ſhould be placed in a ſheltered ſituation; and upon the firſt approach of froſt, they muſt be removed into ſhelter, for if their leaves are injured by froſt, they will change to a pale yellow, and will not recover their colour till the ſummer following. Theſe ſorts may be preſerved in a green-houſe through the winter, and in May when the flower-buds begin to appear, the plants ſhould be placed in an open glaſs-caſe, where they may be defended from the inclemency of the weather; but when the weather is warmer, the air ſhould be admitted to them in great plenty.

OLIVE-TREE, *Olea*, a genus of plants ranged by Linnæus among the *diandria monogynia*, of which there are five ſpecies. 1. Olive with linear ſpear-ſhaped leaves which are hoary on their under ſide; commonly called Province-Olive. 2. Olive with ſpear-ſhaped leaves, and an egg-ſhaped fruit; called the Spaniſh Olive. 3. Olive with ſpear-ſhaped, obtuſe, rigid leaves, which are hoary on their under ſide; or the wild Olive. 4. Olive with ſpear-ſhaped ſhining leaves, and taper branches, called African Olive. 5. Olive with oval ſtiff leaves, ſitting cloſe to the branches; common called Box-leaved Olive.

The Olive ſeldom riſes to be a large tree. Here the plants are preſerved by way of curioſity, and are placed in winter in the green-houſe.

Culture of the Olive-Tree.

Theſe plants may be propagated by laying down their tender branches, which ſhould remain undiſturbed two years; in which time they will have taken root, and may then be taken off from the old plants, and tranſplanted either into pots filled with freſh light earth, or into the open ground in a warm ſituation. The beſt ſeaſon for tranſplanting them is in the beginning of April, when you ſhould, if poſſible, take the opportunity of a moiſt ſeaſon; and thoſe which are planted in pots ſhould be placed in a ſhady part of the green-houſe till they have taken new root. Thoſe planted in the ground ſhould have mulch laid about their roots, to prevent the earth from drying too faſt; and ſhould ſometimes be refreſhed with water, but too much wet will rot the tender fibres of their roots, and deſtroy the trees. When the plants have taken freſh root, thoſe in the pots may be expoſed to the open air, and treated in the ſame manner with other hardy exotics; but thoſe in the open air will require the ground to be mulched about their roots, to prevent the froſt from penetrating deep into it; and if the froſt ſhould prove very ſevere, they muſt be covered with mats, which will greatly defend them; care muſt be taken not to let the mats remain over them after the froſt is paſt, for by keeping them too cloſe, their leaves and tender branches will turn mouldy for want of free air.

But a more expeditious method of having theſe trees, is to buy them of the people who bring them over every year from Italy. When you firſt procure them, the roots ſhould be ſoaked a day in warm water, and cleaned from the filth they have contracted in their paſſage, after which they ſhould be planted in pots filled with light freſh earth, and plunged into a moderate hot-bed, obſerving to ſcreen them from the violence of the ſun, and to refreſh them with water. With this management they will begin to ſhoot in five or ſix weeks after, when air muſt be allowed them in proportion to the warmth of the ſeaſon; and after they have made pretty good ſhoots, they muſt be inured to bear the open air by degrees, placing them in a ſituation where they may be defended from ſtrong winds; in this place they may remain till October following, when they ſhould be removed into the green-houſe. Having thus acquired ſtrong roots, and made tolerable good heads, they may be drawn out of the pots, preſerving the earth to their roots, and plant them in the open air in a warm ſituation, where you muſt manage them as was before directed for the young ones.

Wild OLIVE, or Oleaster, *Elæagnus*, a genus of plants of which there are three ſpecies. 1. Wild Olive, with ſpear-ſhaped leaves. 2. Wild Olive without thorns, and narrow ſpear-ſhaped leaves. 3. Wild Olive with oval leaves.

The two firſt ſpecies are natives of the Levant. The leaves of the firſt ſpecies are not more than two inches long, and about three quarters of an inch broad in the middle; they are of a ſilver colour, placed alternately; at the foot-ſtalks of every leaf there come out a pretty long ſharp thorn, which thorns are alternately longer: the flowers are ſmall, the inſide of the empalement is yellow, and they have a ſtrong ſcent when open.

The ſecond ſpecies has no thorns on the branches, the leaves are more than three inches long, and half an inch broad, and have a ſhining appearance like ſattin. The flowers grow out at the foot-ſtalks of the leaves, ſometimes two, and frequently three at the ſame place; the outſide of the empalement is ſilvery and ſtudded, the inſide of a pale yellow, having a very ſtrong ſcent.

The third ſpecies grows naturally in Ceylon, and in ſome other parts of India; it riſes with a woody ſtem to the height of eight or nine feet, dividing into many crooked branches. The leaves are oval, and have ſeveral irregular ſpots of a dark colour on their ſurface; they are placed alternately on the branches, and continue all the year.

Culture of the Wild Olive.

Theſe plants may be propagated by laying down the young ſhoots in autumn, which will take root in a year's time, when they ſhould be cut off from the old trees, and either tranſplanted into the nurſery for two or three years to be trained up, or into the places where they are to remain. The beſt time for tranſplanting them is in March, or early in the autumn, provided the roots are mulched, to protect them from ſevere froſt; they muſt be placed where they can be ſcreened from ſtrong winds, for they are very ſubject to be ſplit down by the wind if they are too much expoſed.

The third ſpecies requires a warm ſtove to preſerve it in this country, for it is too tender to live in the open air, excepting in the very warmeſt part of ſummer.

ONION, *Cepa*, according to Linnæus a ſpecies of the Allium, but conſidered as a diſtinct genus by other botaniſts.

The varieties of the common Onion are, the Straſburg Onion, the Spaniſh Onion, the white Egyptian Onion, the ſhallot or eſchallotes, and ſeveral others. Welch Onions are a ſort of Onions propagated by gardeners, for the uſe of the table in ſpring; they never make any bulb, and are therefore only to be eaten in ſallads.

Culture of the ONION.

The varieties of the Onion are propagated by ſowing their ſeeds the latter end of February, in a dry and ſomewhat ſandy ſoil, yet rich; in about a month's time the plants will appear, and, in about a fortnight after that, they will be forward enough for hoeing, which muſt be done with a very ſmall hoe, cutting up all the weeds, and leaving the Onions two inches aſunder: this ſhould be done in a dry ſeaſon, and the ground will then be clear of weeds for a month. At the end of this time they muſt be hoed again, and cut to three inches apart: and about a month or ſix weeks after that to four inches, at which diſtance they will grow very large. Towards the end of July they will have arrived at their full growth, which is known by their leaves hanging down and ſhriveling, and they muſt at this time be pulled up and ſpread on a dry place, and turned every day to prevent their ſtriking freſh roots; in a fortnight or three weeks time they will be dry enough to houſe, and ſhould be wiped clean, and ſpread thin in an upper loft or garret.

The Welch onions are propagated by ſowing their ſeeds towards the end of July, in beds of a dry, but rich ſoil; and in three weeks after ſowing they will appear above ground: they muſt be carefully kept from weeds. About October all their leaves die away, which has occaſioned ſome to think the whole plantation loſt, and to dig up the ground for ſome other uſe; but if they are ſuffered to ſtand, they will ſhoot up again very ſtrong in January, and from that time will grow very vigorouſly, and be fit to draw for young onions in March; they are extremely green and fine, and more valued at market at that ſeaſon than any other kind; but they are much ſtronger than any other onions, and have very much the taſte of garlick.

OPULIFOLIA, a ſpecies of Spiræa. See the article SPIRÆA.

ORACH, or ARACH, *Atriplex*, a genus of plants ranged by Linnæus among the *polygamia monoecia*, and of which there are eight ſpecies. 1. Orach with a ſhrubby ſtalk, and intire leaves, ſhaped like a Greek delta, commonly called Sea Pruſſane-tree. 2. Orach with a ſhrubby ſtalk, and oval leaves. 3. Orach with an herbaceous ſtalk and ſinuated, waved alternate leaves, ſhaped like a Greek delta. 4. Orach with an erect herbaceous ſtalk, and triangular leaves, or the garden Arch. 5. Orach with an herbaceous ſtalk, and delta-ſhaped, ſpear-ſhaped, obtuſe indented leaves, meally underneath. 6. Orach with an herbaceous ſtalk, and the female valves large, ſinuated and delta-ſhaped. 7. Orach with an herbaceous petulous ſtalk, ſpear-ſhaped, delta-ſhaped leaves, and indented cups in the diſk to the ſeeds. 8. Orach with an erect herbaceous ſtalk, and all the leaves linear and intire.

The firſt ſpecies is a ſhrubby plant, which grows in hedges on the ſea-coaſt of Portugal, Spain, and Virginia.

The ſecond ſpecies is alſo a ſhrubby plant, which grows naturally near the ſea in England, and in other countries in the north of Europe.

The third and fourth ſpecies are annual plants, and natives of Tartary.

The fifth, ſixth, ſeventh, and eighth ſpecies are annual plants.

Culture of the ORACH.

The firſt and ſecond ſpecies are propagated by cuttings planted in any of the ſummer months on a ſhady border: they muſt be gently watered, and in autumn be tranſplanted to the places in which they are deſigned to remain.

All the other ſpecies are propagated by ſeeds, which ſhould be ſown early in the ſpring, or in autumn, after they are ripe. When the plants are about an inch high they muſt be hoed and cut down where they are too thick, ſo as to leave them at the diſtance of four inches aſunder. Let them be kept clean from weeds, and when they are about four inches high, they ſhould be hoed a ſecond time, and cut where they grow too cloſe.

ORACH, a ſpecies of Gooſe-foot. See the article GOOSE-FOOT.

ORANGE-TREE, *Aurantium*, according to Linnæus a ſpecies of Citrus, but by other botaniſts conſidered as a diſtinct genus, of which there are five ſpecies. 1. The common Seville Orange. 2. The China Orange. 3. The Willow leaved, or Turkey Orange. 4. The Pampelmoes, or Shaddock. 5. The Dwarf, or Nutmeg Orange.

There are many varieties of the Orange-tree, the following of which are propagated in our gardens. 1. The horned Orange. 2. The double flowering Orange. 3. The yellow and white ſtriped leaved Orange. 4. The curled leaved Orange. 5. The hermaphrodite Orange.

The Seville Orange is the moſt hardy of all theſe trees; and thoſe with the ſtriped leaves are the moſt tender.

Culture of the ORANGE-TREE.

If the gardener intends to raiſe ſtocks for budding of Oranges, he ſhould procure ſome Citron ſeeds which were properly ripened; or ſome Seville Orange ſeeds, but thoſe of the Citron are to be preferred. The beſt ſeeds are thoſe taken from rotten fruits, which in the ſpring of the year are eaſily procured; theſe muſt be ſown in pots of good rich earth, and plunged into a hot-bed of tanners bark. In three weeks or a month the plants will come up, and in about ſix weeks after their appearance, will be fit to tranſplant into ſingle pots: the hot-bed muſt then be renewed, and having prepared a number of ſmall halfpenny pots, fill them half full of freſh loamy earth, mixed with very rotten cow-dung; then ſhake out the young plants from the ſeed-pots, with all the earth about them; place one plant in each of the pots, then fill it up with the ſame earth, plunge the pots into the new hot-bed, give them a good watering to ſettle the earth to their roots, and obſerve to ſcreen them from ſun in the heat of the day. The latter end of July you muſt begin to harden them by degrees, firſt raiſing the glaſſes very high, and when the weather is good take them quite off; but in the violent heat of the day they muſt always be ſhaded with mats. Toward the end of September they ſhould be removed into the green-houſe, where they muſt be placed near the windows, and during the winter often refreſhed with a little water.

In the ſpring the pots may be plunged into a gentle hot-bed; but they muſt be hardened by the beginning of June, that they may be in right order to bud before Auguſt. When you have budded the ſtocks, from whatever kinds you think proper, they ſhould be removed into the green-houſe, turning the buds from the ſun; but allow them as much free air as poſſible, and refreſh them often with water. In about a month after budding, you will ſee which of them has taken, and you muſt untie them, that the binding may not pinch the buds, and let them remain in the green-houſe all the winter. In the ſpring prepare a moderate hot-bed of tanners bark, and after having cut off the ſtocks about three inches above the buds, plunge the pots into the hot-bed, obſerving to give them air and water according to the heat of the weather, and always ſhade them from the heat of the ſun in the middle of the day. The latter end of July you muſt begin to harden them that they may bear the winter in the green-houſe; here they muſt be kept warm for ſome time, for by being forced in the bark-bed, they will be rather tender the firſt winter. They will by this time have attained the height of three feet, which is ſufficiently high for the ſtems; it will therefore be proper to ſtop the leading branch to force out lateral ſhoots, and after the firſt winter they will require no more care than other full-grown trees.

Always obſerve, at the time of budding the ſtocks, to make choice of cuttings from very thriving and fruitful trees; chuſing ſuch buds as are round, for theſe are much better and eaſier to part from the wood, than ſuch as are flat.

The above is a regular and certain way of ſupplying a green-houſe with Orange-trees, but there is a much more expeditious one, which is the purchaſing ſuch trees as are brought over every year from Italy. Theſe are as large when we receive them, as thoſe of our own produce,

duce, will be in ten or twelve years growth ; and though they have but ſmall heads then, will be brought to have very good ones in three years, and to produce very fine fruit. In the choice of theſe trees, thoſe which have two buds in ſtock are preferable to thoſe which have only one ; and the ſtraitneſs of the ſtem, freſhneſs of the branches, and plumpneſs of the bark, are greatly to be regarded.

When you have purchaſed a proper number of theſe trees, each of them is to be ſet in a tub of water, with its head and half the trunk above the ſurface ; they are to ſtand in this three days, then they are to be taken out, their roots picked, and bruſhed clean, and the tops of the branches cut off, after which they muſt be planted ſingly in pots juſt large enough to contain their roots, filled with a mixture of freſh earth and rotten cow-dung. Theſe are to be ſet in a moderate hot-bed of tanners bark ; and ſome potſherds muſt always be put at the bottom of the pots, to keep their holes from being ſtopped, and give a free paſſage. They are to be moderately watered at proper times, and by the month of June, they will have ſent out very long ſhoots, which muſt be ſtopped, in order to produce the lateral branches.

They ſhould now be hardened by degrees, and in the middle of July muſt be brought into the open air, and placed in ſome warm ſituation, defended from winds, and from the too great heat of the ſun. In September they muſt be removed into the green-houſe, and watered gently during the winter. The ſucceeding ſummer the branches muſt be ſtopped from growing to their lengths, to furniſh a good head ; and they muſt be frequently watered ; after this, they will require no farther management, but to be new potted every year ; which ſhould be done in April. The roots ſhould be ſoaked a quarter of an hour in water, and afterwards ſcrubbed very clean, before they are put into the new pots.

If old Orange-trees have bad heads, the way to mend them is to cut the greater part of them off, and proceed with them in the ſame manner as with the trees brought from Italy.

All Orange-trees require frequent, but gentle waterings ; there muſt always be a paſſage for the water to run off at the bottom of the pot or tub ; they muſt have as much free air in winter as the ſeaſon will allow, and they ſhould not be ſet too near each other in the green-houſe. In ſummer they ſhould be placed where they may have the morning and evening ſun, without too much wind ; and they ſhould not be houſed till October.

The beſt compoſt for Orange-trees is two thirds of freſh earth from a good paſture, which ſhould not be too light nor over ſtiff, but rather a hazle loam : this ſhould be taken about ten inches deep with the ſward, which ſhould be mixed with the earth to rot, and one third of neats-dung. Theſe ſhould be mixed together at leaſt a twelvemonth before it is uſed, obſerving to turn it over every month, to mix it well and to rot the ſward ; this will alſo break the clods, and cauſe the mould to be finer. Before you make uſe of this earth, you ſhould paſs it through a rough ſcreen, to ſeparate the great ſtones, and the roots of the ſward from it : but by no means ſift the earth too fine ; for this is very prejudicial to moſt plants, particularly to Orange-trees.

Mock ORANGE. See the article SYRINGA.

ORANGE-MINT. See the article MINT.

ORCHARD, a plantation of fruit-trees. In planting an orchard, great care ſhould be taken that the ſoil is ſuitable to the trees planted in it ; and that they are procured from a ſoil nearly of the ſame kind, or rather poorer than that laid out for an orchard. As to the ſituation, an eaſy riſing ground, open to the ſouth-eaſt, is to be preferred. Mr. Miller recommends planting the trees fourſcore feet aſunder, but not in regular rows ; and would have the ground between the trees plowed, and ſown with wheat and other crops, in the ſame manner as if it was clear from trees, by which means the trees will be more vigorous and healthy, will abide much longer, and produce better fruit. If the ground has been paſture, the green-ſward ſhould be plowed in the ſpring before the trees are planted ; and if it be ſuffered to lie a ſummer fallow, it will greatly mend it, provided it be ſtirred two or three times to rot the graſs and prevent the growing of weeds. At Michaelmas it ſhould be plowed pretty deep, in order to make it looſe for the roots of the trees, which if the ſoil be dry, ſhould be planted in October; but if it be moiſt, the beginning of March will be a better ſeaſon. If ſeveral ſorts of fruit-trees are to be planted on the ſame ſpot, you ſhould obſerve to plant the largeſt growing trees backwards, and ſo proceed to thoſe of leſs growth, continuing the ſame method quite through the whole plantation ; by which means the ſun and air will more eaſily paſs through the whole orchard. When you have planted the trees, you ſhould ſupport them with ſtakes, to prevent their being blown out of the ground by the wind ; and the following ſpring, if the ſeaſon ſhould prove dry, cut a quantity of green turf, and lay it about the roots, with the graſs downwards ; by which means a great expence of watering will be ſaved ; and after the firſt year they will be out of danger. Whenever you plow the ground betwixt theſe trees, you muſt be careful not to go too deep amongſt their roots, which would greatly damage the trees ; but if you do it cautiouſly, your ſtirring the face of the ground will be of great ſervice to them : though you ſhould obſerve, never to ſow too near the tree, nor to ſuffer any great rooting weeds to grow about them; becauſe this would ſtarve them, by exhauſting the goodneſs of the ſoil, which every two or three years ſhould be mended with dung or other manure, which will be abſolutely neceſſary for the crops ſown between. Theſe trees, after they are planted out, will require no other pruning beſides cutting off their bad branches, or ſuch as croſs each other.

OREOSELINUM, a ſpecies of Spignel. See the article SPIGNEL.

ORIGANY, *Wild*, or *Pot* MARJORAM, *Origanum*, a genus of plants, ranged by Linnæus among the *didynamia gymnoſpermia*, and of which there are ten ſpecies. 1. Origany, with fleſhy, woolly leaves. 2. Origany, with under leaves woolly, and nodding ſpikes of flowers ; or the Dittany of Crete. 3. Origany, with all the leaves ſmooth, and nodding ſpikes of flowers. 4. Origany, with long upright priſmatical ſpikes, growing in cluſters, and membranaceous bracteæ twice the length of the cup. 5. Origany, with oval, acute, ſawed leaves, and ſpikes of flowers diſpoſed in umbellated bunches. 6. Origany, with long ſpikes growing in bunches, and bracteæ as long as the cup. 7. Origany, with roundiſh, paniculated ſpikes, gathered in cluſters, and oval bracteæ longer than the cup. 8. Origany, with oblong, hairy ſpikes, growing in bunches, and heart-ſhaped, woolly leaves. 9. Origany, with long, hairy ſpikes growing by threes, upon the foot-ſtalks, and oval, hairy leaves. 10. Origany, with oval, obtuſe leaves, and roundiſh, compact, hairy ſpikes.

The firſt ſpecies is a native of Egypt, and is a perennial plant.

The ſecond ſpecies is alſo perennial, and a native of Crete.

The third ſpecies grows naturally in Phrygia.

The fourth and ſixth ſpecies are natives of the ſouthern parts of Europe.

The fifth ſpecies is a native of Crete and Smyrna.

The ſeventh ſpecies grows naturally in thickets, and among buſhes, in many parts of England.

The eighth ſpecies grows wild in Syracuſe.

The ninth and tenth ſpecies are natives of different parts of Europe.

Culture of the ORIGANY.

The firſt, ſecond, and third ſpecies are propagated by ſlips or cuttings planted in any of the ſummer months on a border of good earth ; they muſt be ſhaded from the ſun, and duly watered, and after they have taken root let them be planted in ſmall pots, filled with light kitchen-garden earth, and placed in the ſhade till they have taken new root : they may then be removed into an open ſituation, where they may remain till the end of

October, when they muſt be placed under ſhelter.

The fourth, fifth, and ſixth ſpecies are propagated by parting of the roots in autumn, in a dry ſoil and warm ſituation.

The ſeventh ſpecies will riſe plentifully from ſcattered ſeeds, or may be propagated by parting of the roots in autumn, and will thrive in any ſituation: it requires no other care but to be kept clear from weeds.

The eighth and ninth ſpecies are propagated from cuttings or ſlips in the ſame manner as directed for the firſt ſort.

The tenth is an annual plant, and is propagated by ſeeds ſown on a warm border, towards the end of March. When the plants are come up about an inch high, they ſhould be tranſplanted into beds of rich earth, at the diſtance of ſix inches one from another, obſerving to water them duly till they have taken new root, after which they will require no care but to keep them clean from weeds.

ORPINE, *Telephium*, a genus of plants, ranged by Linnæus among the *pentandria trigynia:* of which there is only one ſpecies.

It is a perennial plant, and a native of France.

Culture of the ORPINE.

It is propagated by ſeeds, which ſhould be ſown in autumn, upon a bed of freſh, light earth; when the plants are come up, they ſhould be thinned ſo as to ſtand ſix or eight inches aſunder: they muſt be conſtantly kept free from weeds, and if the ſeeds are permitted to ſcatter, the plants will come up, and will require no other care than to be kept clean from weeds.

ORPINE, a ſpecies of the Leſſer Houſeleek. See the article *Leſſer* HOUSELEEK.

Leſſer ORPINE, or LIVE-EVER, *Craſſula*, a genus of plants, ranged by Linnæus among the *pentandria pentagynia*, and of which he enumerates ten ſpecies: all of them are kept in botanic gardens for the ſake of variety, but one only is admitted into other gardens, *viz.* Leſſer Orpine, with plain, cartilaginouſly, ciliated leaves, joined at the baſe, and ſurrounding the ſtalklike ſheaths; or Crimſon Craſſula.

This plant is a native of the Cape of Good Hope, and other parts of Africa. The root is thick and ſpreading: the ſtem where naked is of a duſky brown, firm and hard. The leaves are ſingular and very beautiful: they are oblong, broad, and ſharp-pointed: of a firm ſubſtance, a yellowiſh green colour, and edged with a filmy rim. At the baſe they grow together, and encompaſs the ſtalk. The flowers are numerous and extremely elegant: they are large, and ſtand in great tufts in the manner of umbels; their colour is a bright and glowing crimſon.

Culture of the Leſſer ORPINE, *or Crimſon* CRASSULA.

The beſt method of propagating it is by ſeeds, which ſhould be ſown early in the ſpring, in a pot filled with paſture-ground, and one fourth part of rotted cow-dung: ſet this pot up to the rim in a bark-bed of a moderate heat, and once in two days give it a very ſlight ſprinkling of water. When the plants come up let them be gently watered, and have plenty of freſh air in the middle of the day, and when they have attained to a little height let each be planted in a ſeparate pot filled with the ſame compoſt, and ſet up to the rim in a bark-bed: the plants muſt be gently watered, and the glaſſes covered with a mat during the heat of the day.

When the plants are well rooted, let them be gradually inured to the open air, after which they will require to be ſhifted into larger pots. They may be ſet out in ſummer among the exotics which bear that expoſure, and at the approach of winter be removed to the green-houſe, where, if rightly managed, they will continue to flower from July to the end of winter.

It may alſo be propagated by cuttings during any of the ſummer months, but this is not ſo good a way as raiſing the plants from ſeeds.

Baſtard ORPINE, *Andrachne*, a genus of plants, of which there is but one ſpecies. It is a native of Italy.

Culture of the Baſtard ORPINE.

It is propagated by ſeeds, which ſhould be ſown on a bed of common earth in the autumn, ſoon after they are ripe: ſometimes the plants will come up the following ſpring, but the ſeeds will frequently remain in the ground till the next year. It ſhould be ſown where it is deſigned to remain, and will require no other culture but to keep the plants clear from weeds. It muſt have a light dry ſoil and a warm ſituation.

OSTRYA, a ſpecies of Hornbeam. See the article HORNBEAM.

OTHONNA, *Ragwort*, a genus of plants, ranged by Linnæus among the *ſyngeneſia polygamia neceſſaria*, and of which there are ſeveral ſpecies, but the culture of the four following will be a ſufficient direction to the gardener for that of all the reſt. 1. Othonna, with pinnatified leaves, and narrow parallel ſegments. 2. Othonna, with ſpear-headed, undivided leaves. 3. Othonna, with roundiſh but ſomewhat kidney-ſhaped leaves, dented at the edges, and placed on foot-ſtalks. 4. Linear-leaved Othonna.

The root of the firſt ſpecies is woody, brown, divided, ſpreading, and hung with many fibres. The ſtem is alſo woody, and is covered with a rough brown bark, and with the remains of many fallen leaves, whoſe foot-ſtalks are more durable. The branches are numerous and their bark is greyiſh. The leaves are ſcattered over them without order, and they are of a pleaſing figure; they are oblong, conſiderably broad, and divided on both ſides almoſt to the rib, into a great number of long, narrow, and parallel ſegments; the colour of theſe is a whitiſh green, and they are hoary. The foot-ſtalks are ſometimes reddiſh, and the rib in the middle is frequently a little tinged in the ſame manner. The flowers are large and yellow: they are placed on long, ſlender, whitiſh and hoary foot-ſtalks, terminating the tops of the branches; they are of the radiated kind, and have the rays particularly long: theſe are of a very fine ſtrong yellow, and the diſk in the center, which is ſmall, is of a very deep tinct of the ſame kind. The ſeeds are numerous and winged with down. The flower is of an unpleaſing ſmell, but the leaves when rubbed in the hand are not diſagreeable. The cup in which the flower ſtands is formed of a ſingle piece, and is of a plain ſtructure, hollow, and at the rim divided into eight ſegments. The floſcules contained in the body of the flower are of two kinds, tubular and ligulated; the tubular floſcules occupy the center, and are numerous; the ligulated floſcules are few, and ſtand at the verge. The tubular contains five filaments, whoſe buttons are of an oblong form, and unite in a cylinder, and in the midſt of theſe is placed a ſingle ſtyle. In the ligulated, which are female floſcules only, there are no filaments: theſe contain the rudiment of a ſeed, from which riſes a ſingle ſtyle, ſplit at the top.

The root of the ſecond ſpecies is white and fibrous. The plant riſes to four feet in height. The ſtalk is round, hard, in ſome degree woody: ſmooth on the ſurface, purpliſh towards the baſe, and, in the reſt of its height of a whitiſh green. The leaves are very long and beautiful: they grow to the ſtalk by a hollow baſe, and from that part where they are broadeſt diminiſh to a point; they are lightly and irregularly waved or ſinuated, and their colour is a fine bluiſh green. The flowers are placed in great tufts at the tops of numerous branches, which riſing from the boſoms of the upper leaves, form, in the whole, a broad and ſpreading umbell, they are ſmall; their colour is yellow, paler in the rays, and deeper in the diſk. The ſeeds which follow theſe are winged with down. The cup in which each flower ſtands, is formed of a ſingle piece, cut into deep ſegments at the top: theſe are twelve, and they are narrow and pointed. The flower is compoſed of two ſorts of floſcules: thoſe in the center of the diſk are the moſt perfect; they are tubular, and nipped into five ſegments at the edges, and in each of theſe ſtand five filaments with coaleſcent buttons.

The root of the third ſpecies is long, white, tender, and hung with many fibres. The ſtalks are numerous. The colour of theſe is brown toward the ground, and green upwards. The leaves cover theſe irregularly:

they have long foot-ſtalks, hollow on the upper ſide, rounded below, and of a pale green colour. The leaves are rounded on the outer edge, but hollowed to receive the ſtalk; they are ſharply indented on the edges, and their colour is a pale green but lively, and often the ribs are reddiſh. The flowers cloath the tops of all the ſtalks in large tufts, reſembling umbells, of a looſe compoſition, each flower being large, and placed on a long foot-ſtalk. Theſe are of the compoſite, radiated kind, but the rays are few: theſe are of a pale, and the diſk is of a deeper yellow. The cup is formed of a ſingle piece, rounded at the bottom, and divided at the edge into about eight oblong ſegments. The flower conſiſts of a diſk, formed of a multitude of tubular floſcules, and ſurrounded by about eight female or ligulated floſcules at the edge. The tubular floſcules are very ſhort, and they are divided into five ſegments at the rim: in theſe are placed five filaments with coaleſcent buttons. The female floſcules are flat, oblong, and naturally, when ripe, turn back: theſe have no filaments, but from the rudiment of the ſeed there riſes a ſingle ſtyle with a large ſtigma, which is divided into two parts, and turned backward.

The root of the fourth ſpecies is reddiſh, divided, hung with innumerable fibres, and ſpreading. The main ſtem is thick, woody, and covered with a pale brown bark. The branches are pale, and the young ſhoots green. The leaves are numerous and placed irregularly: they are long, narrow, ſharp-pointed, and of a pale green, a little hoary, and of a firm ſubſtance. The flowers are numerous and yellow: they ſtand in irregular broad tufts at the extremities of the branches, and are of the compoſite, radiated kind. The cup is compoſed of one piece, hollow at the baſe, and divided into five ſegments at the rim. The diſk of the flower is compoſed of tubular floſcules: theſe are ſhort and divided at the rim into five ſegments, and in each there are five ſhort filaments with convergent buttons. The rays are about eight, they are female flowers: their form is long and lanceolate, and they are cut into three parts at the end; they have at their baſe only the rudiment of a ſeed, with a ſingle ſtyle terminated by a large ſplit head. The ſeeds ſtand naked in the cup, and they are only a ſingle ſeries, for the female flowers alone bring any to perfection.

Culture of the OTHONNA.

This plant is propagated by ſowing the ſeeds the end of February, upon a moderate hot-bed; and when they are large enough they muſt be planted ſingly in pots of a moderate ſize, filled with the following compoſt.

Take up a barrow of rich black mould from under the turf in a meadow, put to this a buſhel of coarſe ſand, a buſhel of pond-mud, and a peck of rotted cow-dung.

After they are planted in this compoſt they muſt be brought into a warm part of the garden, and ſet in the open air till the approach of autumn, and then removed into the green-houſe. If they are taken thence into the ſtove about the middle of October, they will be brought to flower in great perfection.

The ſecond ſpecies is propagated by ſeeds ſown in pots filled with ſome of the following compoſt.

Mix a barrow of meadow earth, half a barrow of pond-mud and a buſhel of ſand. Let the pots be ſet up to the rim in a bark-bed; and when the young plants riſe, let all except three or four be pulled up. Let theſe, by frequent waterings, be brought to a height fit for tranſplanting; they muſt then be placed each into a ſeparate pot; and again ſet in the bark-bed till rooted. Then let them by degrees be inured to the air. They may then be ſet out in ſummer, among the green-houſe plants, and in autumn taken into ſhelter with them.

The third ſpecies is a biennial plant, and muſt be propagated by ſeeds, which may be eaſily had from the Cape.

Let a compoſt be made for their reception thus:

Mix two buſhels of rich black mould from under the turf in a meadow, and one buſhel of pond-mud; add two pecks of mellow earth from under a wood-pile; and when all are thus well blended together, fill a couple of garden-pots with it. Scatter the ſeeds carefully over the ſurface, and ſift over them a very thin covering of the ſame mould. Set theſe pots up to the rim in a bark-bed, and give them once in three days a gentle watering. When the plants come up, take up the weakeſt where they grow too cloſe, and leave one ſtrong plant in the middle of each pot; this is never to be tranſplanted: but three or four may for the preſent be left at due diſtances in each pot, to be removed afterwards. As theſe riſe in height, let them have air in the middle of the day; and water once in two or three days. About the fifth week from their firſt appearance, let a couple of the beſt of theſe be planted in middle-ſized pots, and the others in very ſmall ones, leaving only the ſingle plants intended in the original pots. Theſe new planted ones muſt be ſet up to the rim of the pots in the bark-bed, and ſhaded and watered till they have taken root: after this, they are by degrees to be inured to the air; and at the approach of cold weather, placed in the green-houſe. Early the following ſpring, let thoſe in the ſmall pots be carefully ſhook out, and planted in different warm and ſheltered ſpots in the open ground; and of the others let ſome be tied up to ſticks, thruſt into the pots for that purpoſe; and others left to fall and hang their own way over their edges. They will all flower the ſucceeding autumn; and, with good management, through the whole winter.

The fourth ſpecies may be propagated, and managed in the ſame manner as the third.

OX-EYE, *Bupthalmum*, a genus of plants ranged by Linnæus among the *ſyngeneſia polygamia ſuperflua*, and of which there are ſeven ſpecies. 1. Ox-eye with ſpear-ſhaped oppoſite leaves, and foot-ſtalks with two teeth. 2. Ox-eye with acute leafy cups, alternate branches, and entire ſpear-ſhaped leaves embracing the ſtalks. 3. Ox-eye with blunt leafy cups growing cloſe to the ſides of the ſtalks, and oblong blunt leaves. 4. Ox-eye with blunt leafy cups upon foot ſtalks, alternate branches, and wedge-ſhaped leaves. 5. Ox-eye with ſpear-ſhaped, ſawed, hairy leaves, and naked. 6. Ox-eye with ſmooth, ſpear-ſhaped, indented leaves, and naked cups. 7. Ox-eye with leafy cups, heart-ſhaped, ſawed leaves, having three veins, and the baſe on one ſide ſhorter than the other.

The firſt ſpecies is a perennial plant, and grows naturally in Jamaica and Virginia.

The ſecond ſpecies is an annual plant, and a native of Italy and Spain.

The third ſpecies grows naturally in Crete and Portugal, and is alſo an annual plant.

The fourth ſpecies is a native of Sicily, and is a perennial plant.

The fifth and ſixth ſpecies are natives of the ſouthern parts of Europe, and are perennial plants.

The ſeventh ſpecies grows naturally in North America, and is likewiſe a perennial plant.

Culture of the OX-EYE.

The firſt ſpecies is propagated by cuttings, which ſhould be planted in July, in ſmall pots filled with light loamy earth, and plunged into a very gentle warmth, ſhaded from the ſun in the heat of the day, and moderately refreſhed with water. When the plants have taken root, which will be in about ſix weeks, they muſt be gradually inured to bear the open air, and ſoon after planted each in a ſeparate ſmall pot, filled with ſome of the ſame earth, and placed in the ſhade till they have taken freſh root; after which let them be removed into ſhelter, and about the middle of October be taken into the green-houſe; and in ſummer placed abroad in a ſheltered ſituation.

The ſecond and third ſpecies are propagated by ſowing the ſeeds in April on open borders, where the plants are deſigned to remain, and will require no other care but to be kept clear from weeds, and thinned to the diſtance of a foot and a half.

The fourth ſpecies is eaſily propagated by ſlips during the ſummer ſeaſon: if the cuttings are planted in a bed of freſh loamy earth, and covered with a hand-glaſs, ſhaded in the heat of the day, and frequently refreſhed with water; in about ſix weeks they will have taken root, after which they may be managed as directed for the firſt ſpecies.

The fifth, ſixth, and ſeventh ſpecies are propagated by parting of the roots. The beſt time for tranſplanting and parting them is about the end of October. They are hardy plants, and will thrive in any ſituation, but ſhould be removed every other year to prevent their ſpreading too far.

* * *

P.

PALM-TREE, *Palma*, a genus of plants of which there are fourteen ſpecies. 1. Palm-tree, with winged leaves, whoſe lobes are narrow, and terminated by ſpines; or Date-tree. 2. Palm-tree with winged leaves, whoſe lobes are folded back, foot-ſtalks proceeding from the ſides of the branches, and a large angular fruit; commonly called Cocoa-nut. 3. Palm-tree with winged leaves, which are every way armed with black ſpines, bearing a larger fruit; commonly called great Macaw-tree. 4. Palm-tree with winged leaves, whoſe lobes are folded back, and prickly branches, whoſe thorns often come by pairs, and are black. 5. Palm-tree with winged leaves, an equal trunk, and a ſmaller fruit; commonly called the Cabbage-tree. 6. Palm-tree with winged leaves, a taper prickly ſtalk, and a ſmaller fruit; called Prickly Pole. 7. Palm-tree with winged leaves, having narrow plain lobes, and prickly midribs; commonly called oily Palm-tree. 8. Palm-tree with hand-ſhaped winged leaves which are plaited, and ſcaly ſtalks; called Palmetto, or Thatch. 9. Palm-tree with winged leaves, whoſe lobes are linearly ſpear-ſhaped, and prickly foot-ſtalks. 10. Palm-tree with winged branches, whoſe lobes are rigid, alternate, and terminated by prickles. 11. Palm-tree with hand-ſhaped winged leaves, whoſe lobes are folded backward, and are hoary on their under ſide. 12. Palm-tree with a club-ſhaped fruit containing many ſeeds. 13. Palm-tree with winged leaves, whoſe lobes are ſpear ſhaped, plaited, and come out by pairs from one point, ſtanding thinly along the midrib. 14. Palm-tree with ſingle, entire, flaccid leaves; commonly called Dragon tree.

For the deſcription, and manner of culture of the firſt ſpecies, ſee the article DATE-TREE.

The ſecond ſpecies is the Cocoa-nut. The branches of this tree are winged like the Date-tree, but the ſmall leaves or lobes are three times as broad; they open flat, their borders fold backward, and are of a lighter green than thoſe of the firſt ſort. The whole branch is often twelve or fourteen feet long; the male flowers grow in different parts of the ſame tree, with the fruit proceeding from the trunk between the leaves; the nuts growing in very large cluſters, which are covered with a thick fibrous coat adhering cloſely to them. The nuts are large, oval, and have three holes in the ſhell at the top: the kernel is firm, white within, and the ſhell contains a quantity of pale juice, which is called the milk.

The third ſpecies is the Macaw-tree, for which ſee the article MACAW-TREE.

The fourth ſpecies is a native of La Vera Cruz. It has winged leaves or branches. The ſmall leaves or lobes are narrow; they ſpread open, are flat, and their edges fold backward; their ends are blunt, and have no ſpines; the midrib is armed with long black ſpines, which frequently come out by pairs from the ſame point. The flowers are placed between the leaves, and the fruit grows on the ſame plant as the male flowers.

For the fifth ſpecies, ſee the article CABBAGE-TREE.

The ſixth ſpecies is a native of Jamaica, where it is called Prickly Pole. It riſes to the height of forty feet. The ſtem ſeldom exceeds ſix inches in diameter; it is cloſely armed with long thorns. The leaves are winged, armed with thorns, and placed circularly on the top. The flowers grow in the ſame manner as thoſe of the cocoa nut. The fruit is about the ſize of a large pea, it is flatted at the top, and covered with a red ſkin.

The ſeventh ſpecies is called in the Weſt-Indies Oily Palm. The leaves of this tree are winged, the ſmall leaves or lobes are long and narrow. The flowers grow from the top of the ſtem, the female ones are ſucceeded by berries ſhaped like an olive, but larger.

The eighth ſpecies riſes with a ſlender ſtalk, which is naked and ſmooth, ten or twelve feet high; at the top are many fan-ſhaped leaves placed circularly, and having foot-ſtalks two, and ſometimes three feet long, which are armed with a few ſtrong, green, crooked ſpines; the lobes all meet in one centre, where they join the foot-ſtalk, and are connected together a third part of their length from their baſe: they are at firſt cloſely folded into plaits, but afterwards ſpread out like a fan; their ends often droop, and between the lobes hang long threads. The flowers and fruit grow from between the leaves, the latter is of the ſize and ſhape of a ſmall olive.

The inhabitants of Jamaica, where this tree is a native, call it Palmetto-tree, or Thatch.

The ninth ſpecies is a native of Malabar. It riſes with a ſtrait trunk about forty feet high. The ſtalks are terminated by an obtuſe cone, juſt below which the leaves are placed: thoſe on the large trees are eight or nine feet long, but thoſe of the ſmall plants are much leſs. The baſe of the foot-ſtalk, which partly embraces the trunk, is broad and three-cornered, and is armed on each ſide with ſhort ſpines to the place where the lobes or ſmall leaves begin. Theſe lobes are long, narrow, and entire, of a lucid green on their upper ſide, ſtanding by pairs very cloſe along the mid-rib. The flowers and fruit are produced in large bunches at the foot-ſtalks of the leaves; the fruit is oval, about the ſize of a large plumb, and nearly of the ſame ſhape: the ſkin or covering when ripe is of a bright red, under which is a hard brown ſhell, which incloſes a white nut.

The tenth ſpecies is a native of St. Helena. The leaves are ten feet long; the mid-rib or foot-ſtalk is broad, and flat on the under ſide, but riſes with a ſharp ridge on the upper; the ſmall leaves or lobes are ranged alternately on the ſides: theſe are from two feet and a half to nine or ten inches long, the longeſt being at bottom, decreaſing gradually to the top; they are ſtiff, fold inward, end in a ſharp thorn, and are of a dark green.

The eleventh ſpecies grows naturally on the mountains near Panama. The leaves ſtand upon long foot-ſtalks, which are broad at the top, and have a ſharp ridge or angle underneath. The lobes are placed circularly, meeting in a point at their baſe, where they join the foot-ſtalk: they are divided to the bottom, are two feet long, three inches broad in the middle, and fold backward; they are of a deep green on their upper ſide, and of a ruſſet colour on their under at firſt, but afterwards become white.

The twelfth ſpecies is a native of America. It has a thick ſtem, which ſeldom riſes more than two feet high. The leaves grow round the upper part of the ſtem, ſtanding upon foot-ſtalks, which are a foot and a half long, and one and a half broad in the middle, drawing to a point at both ends; they are ſmooth, ſtiff, entire, and of a pale green. The fruit riſes up from the ſide of the ſtem, upon a ſhort, thick foot-ſtalk, it is ſhaped like a club, and has many ſeparate cells, which contains a number of red ſeeds.

The thirteenth ſpecies is a native of the Spaniſh Weſt-Indies. It riſes with a very tall naked trunk: at the top ſtand long-winged branches or leaves, whoſe lobes are ſpear-ſhaped and plaited. The flowers grow in long bunches between the leaves. The fruit, which is about the ſize of a middling plumb, is collected into large bunches.

For the fourteenth ſpecies, ſee the article DRAGON-TREE.

Culture of the PALM-TREE.

All the ſpecies of Palm are propagated by ſeeds, which ſhould be ſown in the manner directed for the Date-tree. See the article DATE-TREE.

The culture is alſo much the ſame, only obſerve that ſuch of them as are natives of very warm countries will require to be kept in a warmer air. The ſecond, fourth, ſeventh, eighth, twelfth, and thirteenth ſorts, muſt be kept conſtantly in the bark-bed of the ſtove.

The ſixth, ninth, tenth, and eleventh ſpecies may be kept in a dry ſtove in the winter, in a moderate temperature of heat, and in the hotteſt part of ſummer they may be expoſed to the open air in a warm, ſheltered ſituation. Theſe plants ſhould have but little water during the winter ſeaſon, and in the ſummer they muſt not be often watered unleſs the ſeaſon is very dry. As they increaſe in ſize they muſt be ſhifted annually into larger pots, taking great care in the removing them not to cut their principal roots. The earth in which they are planted ſhould be light, that the moiſture may eaſily paſs off.

For the management of the firſt, third, fifth, and fourteenth ſpecies. See the articles Date-tree, Macaw-tree, Cabbage-tree, and Dragon-tree.

PANICLE, a ſtalk diffuſed into ſeveral pedicles, or foot-ſtalks, ſuſtaining the flowers or fruits, as in oats, &c.

PANSIES or HEARTS-EASE. See the article Hearts-ease.

PAPAW-TREE, *Carica*, a genus of plants, ranged by Linnæus among the *dioecia decandria*, and of which there are only two ſpecies. 1. Papaw-tree, with the lobes of the leaves ſinuated. 2. Papaw-tree, with the lobes of the leaves entire.

The firſt ſpecies is a native of the Indies, and the ſecond of Surinam.

Culture of the Papaw-tree.

Theſe ſpecies are both propagated by ſeeds, which ſhould be procured from the places in which they naturally grow. Theſe ſhould be ſown on a hot-bed early in the ſpring, and when the plants are near two inches high, they ſhould be each tranſplanted into a ſeparate ſmall pot filled with a light loamy earth, and plunged into a hot-bed of tanners bark, carefully ſhading them from the ſun, till they have taken root; after which they may be treated in the manner of other tender exotic plants.

They ſhould have very little water, and care ſhould be taken when the plants are ſhifted from ſmall pots into larger ones, to preſerve the whole ball of earth to their roots. As the plants advance in growth they will require larger pots, and when they are too tall to remain under frames, they muſt be placed in the tan-bed of the bark-ſtove, where they ſhould conſtantly remain. In winter they ſhould have very little water, and the waterings in ſummer ſhould be gentle and often repeated: by this management the plants will, in about three years, produce their flowers and fruit in great perfection.

As they grow to eighteen or twenty feet in height, the ſtove muſt be ſo contrived as to receive them.

PAPILIONACEOUS, an appellation given to the flowers of certain plants, from their reſembling the figure of a butterfly; they conſiſt of four petals, whereof that which covers the others is called the vexillum, or the ſtandard; the two petals placed on each ſide are called the alæ, or the wings; and the loweſt petal is termed the carina, or keel, which is a concave petal or ſegment, reſembling the loweſt part of a boat; the keel is ſometimes entire, and ſometimes it conſiſts of two petals or ſegments, adhering pretty cloſely together.

PAPPOSE, an appellation applied to ſuch ſeeds as are covered with a down, which adheres to the upper part of the ſeed, and is of uſe to ſpread them when ripe, by ſuſtaining them in the air, ſo that they may be conveyed to a great diſtance. The word is derived from

PAPPUS, which ſignifies the down that grows on certain ſeeds. See the laſt article.

PARASITICAL PLANTS, ſuch as are produced out of the trunk or branches of other plants, from whence they receive their nouriſhment, and will not grow upon the ground.

PARK LEAVES, a ſpecies of St. Johnſwort. See the article St. Johnswort.

PARKINSONIA, a genus of plants, of which there is only one ſpecies.

This tree riſes to the height of twenty feet, and bears long, ſlender bunches of yellow flowers, which perfume the air to a conſiderable diſtance, with a moſt agreeable ſweet ſcent.

Culture of the Parkinsonia.

It is propagated by ſeeds, which ſhould be ſown early in the ſpring in ſmall pots filled with light freſh earth, and plunged into a hot-bed of tanners-bark; in about three weeks or a month the plants will come up, when they ſhould be kept clear from weeds, and frequently refreſhed with water. In a little time they will be fit to tranſplant, which ſhould be done very carefully, ſo as not to injure their roots. They muſt be each planted into a ſeparate ſmall pot filled with light freſh earth, and plunged into the hot-bed again, obſerving to ſtir up the tan, and if it has loſt its heat, there ſhould be ſome freſh tan added to renew it again. The plants muſt be ſhaded from the heat of the ſun till they have taken new root, after which they ſhould have freſh air admitted to them every day, in proportion to the warmth of the ſeaſon. By the beginning of July the plants will have filled the pots with their roots, when they ſhould be ſhifted into pots a little larger than the former, and plunged again into the bark-bed. As ſoon as they have taken freſh root, they ſhould by degrees be inured to the open air; and in September they muſt be removed into the dry ſtove, and placed on ſhelves at the greateſt diſtance from the fire, when they will retain their leaves all the winter.

PARSLEY, *Apium*, a genus of plants, ranged by Linnæus among the *pentandria digynia*: of which there are four ſpecies. 1. The common Parſley. 2. The curled Parſley. 3. The large-rooted Parſley. 4. Smallage, or water Parſley.

Culture of the Parsley.

All theſe ſpecies require the ſame culture. The ſeeds ſhould be ſown early in the ſpring in drills, by the borders in the kitchen-garden. When the plants come up they muſt be kept clean from weeds.

If the roots of the Parſley are deſigned for medicinal uſes, the ſeeds muſt be ſown thin; and when the plants are come up they muſt be hoed out ſingly, as is practiſed for carrots, onions, &c. and kept clean from weeds. The roots will be fit for uſe by July or Auguſt.

Macedonian PARSLEY, *Bubon*, a genus of plants, ranged by Linnæus among the *pentandria digynia*, and of which there are four ſpecies. 1. Macedonian Parſley, with oval, rhomboid, crenated leaves, and a great many umbels. 2. Macedonian Parſley, with ſmooth, ſawed, rhomboid leaves, and a few umbels. 3. Macedonian Parſley, with ſmooth leaves, the lower ones rhomboid and ſawed, and the upper ones winged, and indented in three parts. 4. Macedonian Parſley, with narrow leaves.

The firſt ſpecies is a biennial plant, and a native of Macedonia. The ſecond and third ſpecies are ſhrubby plants, and natives of Ethiopia, but are ſeldom cultivated in gardens. The fourth ſpecies is a perennial plant, and grows naturally in Sicily.

Culture of the Macedonian Parsley.

The firſt and fourth ſpecies are propagated by ſeeds, which ſhould be ſown in April on a bed of light ſandy earth. When the plants come up they muſt be kept weeded, and about the beginning of October carefully tranſplanted into a warm border.

PARSNEP, *Paſtinica*, a genus of plants, ranged by Linnæus among the *pentandria digynia*, and of which there are only two ſpecies. 1. Parſnep, with ſingle-winged leaves; or the garden Parſnep. 2. Parſnep, with decompounded leaves.

Culture of the Parsnep.

It is propagated by ſowing the ſeeds in February or March, in a rich mellow ſoil, which muſt be dug deep that the roots may be able to run into the ground without hindrance.

It is a common practice at the time of ſowing Parſneps to ſow carrots upon the ſame ground, and if the carrots are deſigned to be drawn young there is no harm in it. The Parſneps, when they are grown up a little, muſt be thinned to a foot diſtance, and carefully kept clear of weeds. They are beſt taſted juſt at the ſeaſon when the leaves are decayed; and ſuch as are deſirous to eat them in ſpring, ſhould have them taken up in autumn, and preſerved in ſand.

When the ſeeds are to be ſaved, ſome very ſtrong and fine plants ſhould be left at four feet diſtance, and towards the end of Auguſt, or in the beginning of September the ſeeds will be ripe: they muſt then be carefully gathered, and dried on a coarſe cloth. They ſhould always be ſown the ſpring following, for they do not keep well.

Cow PARSNEP, *Sphondylium*, a genus of plants, of which there are five ſpecies. 1. Common hairy Cow Parſnep. 2. Hairy Cow Parſnep, with narrow leaves. 3. Great Cow Parſnep. 4. Small Alpine Cow Parſnep. 5. Smooth Alpine Cow Parſnep.

The firſt and ſecond ſpecies are natives of this country. The third grows naturally in the Levant and Siberia. The fourth ſort is a native of the Alps, and the fifth grows naturally on the Alps and Appennines.

Culture of the Cow PARSNEP.

Theſe ſpecies are all propagated by ſeeds, which ſhould be ſown in autumn, in drills at three feet diſtance, here the plants are to remain. In the ſpring, when the plants appear, they ſhould be thinned ſo as to leave them eighteen inches aſunder in the rows, after which they will require no farther care than to be kept clear from weeds. The ſecond year they will produce flowers and ſeeds, after which their roots will die. Their ſeeds ſhould never be permitted to ſcatter, for it would ſoon render them very troubleſome weeds.

Prickly PARSNEP, a genus of plants, of which there are only two ſpecies. 1. Prickly Parſnep, with awl-ſhaped leaves, which are entire, having thorns. 2. Prickly Parſnep, with cut leaves without thorns.

Theſe plants grow naturally on the borders of the Mediterranean ſea. The leaves of the firſt ſpecies terminate in two or three ſharp thorns, and the flowers of the ſecond have a ſhort prickly involucrum.

Culture of the Prickly PARSNEP.

Theſe plants are propagated by their creeping roots; the beſt time to tranſplant them is the beginning of March, a little before they ſhoot. The roots ſhould be planted in a gravelly or ſandy ſoil, and in a warm ſituation, or they will require covering in the winter to prevent the froſt from deſtroying them.

Water PARSNEP, *Sium*, a genus of plants, of which there are eight ſpecies, but one of theſe only is cultivated in gardens; *viz.* Water Parſnep, with winged, lower leaves, and thoſe under the flowers trifoliate, commonly called the Siſarum or Skirret.

This plant is a native of China and has a perennial root.

Culture of the Water PARSNEP.

It may be propagated either by ſowing the ſeeds, or by planting the ſlips and off-ſets, but the firſt is much the beſt method. The ſeeds ſhould be ſown on a moiſt, rich ſoil, in the beginning of February. In April the young plants will come up, when they muſt be cleared of weeds and hoed up to three inches aſunder; and about a month after they muſt be thinned a ſecond time, leaving them at ſix inches diſtance. After this they muſt be carefully kept clear from weeds, and when their leaves are decayed, they ſhould be taken up for uſe; but this ſhould only be done as they are wanted, for they ſpoil with lying out of the ground.

The leaves decay in October, and from that time till the middle of March the roots are in ſeaſon, after which time they become good for little.

PARTERRE, a level diviſion of ground, which for the moſt part faces the ſouth and beſt front of the houſe, and is generally furniſhed with greens, flowers, &c.

There are ſeveral ſorts of Parterres, as plain graſs with borders, and Parterres with embroidery, &c.

Plain Parterres are more beautiful in England than in any other country, by reaſon of the excellency of our turf, and that decency and unaffected ſimplicity that it affords to the eye of the ſpectator. Other Parterres are cut into ſhell and ſcroll work, with ſand alleys between them; which ſort of Parterres are eſteemed fineſt in France.

As to the general proportion of Parterres, an oblong, or long-ſquare, is eſteemed the beſt: therefore, a Parterre ſhould not be leſs than twice as long as it is broard, twice and a half is accounted a very good proportions and it is very rare that three times is exceeded. As to the breadth of a Parterre, it is to take its dimenſion from the breadth of the front of the houſe; if the front of the houſe is one hundred feet long, the breadth of the Parterre ſhould be one hundred and fifty feet; and if the front of the houſe be two hundred feet, the Parterre ſhould be fifty feet broader: but where the front exceeds the breadth of this Parterre, it will be a good proportion to make the Parterre of the ſame dimenſions with the front.

There ſhould be a terrace-walk on each ſide of the Parterre, for an elevation proper for view; and therefore, there ſhould never be the flat of a Parterre between terrace-walk and terrace-walk, above three hundred feet; nor can it be well made leſs than one hundred and forty. As to the adorning and furniſhing theſe Parterres, whether it be plain or with embroidery, that depends much upon the form of them, and therefore muſt be left to the judgment and fancy of the deſigner.

PASQUE-FLOWER. See the article *Paſque-*FLOWER.

PASSION-FLOWER, *Paſſiflora*, a genus of plants ranged by Linnæus among the *gynandria pentandria*, and of which there are no leſs than twenty-four ſpecies, a particular deſcription of all theſe would be needleſs, as they bear a great reſemblance to each other, we ſhall therefore only mention one of the moſt beautiful, which is the Laurel-leaved Paſſion-flower. It is a native of South-America. The ſtem is weak and unable to ſupport itſelf; but it will riſe to the height of the talleſt trees; its main trunk winding round them, and its innumerable branches ſpreading over their broad tops, and covering their whole extent with flowers and fruit. The trunk is covered with a rough grey bark. The tender ſtalks are green, and there riſe yellow tendrils with the leaves. The leaves are very large, oblong, broad, ſmooth, pointed at the ends, waved at the edges, and of a fine green. The flowers riſe with the leaves and tendrils, uſually one leaf, one flower, and one tendril together; and for two months of autumn they are extremely numerous. The flower is placed in a large cup, compoſed of five coloured leaves, which are large, long, and pointed. The body of the flower is formed of ſeveral very broad and long petals, which naturally ſpread out, and afterwards fall backward: theſe are of a perfect ſnowy whiteneſs: within them is placed the nectarium forming a triple coronet. The outer circle of theſe three is large, and compoſed of long, ſlender, twiſted filaments, and is of a celeſtial blue: this ſtands within the circle of the petals, and ſurrounds the ſtyle. The others are ſhorter, ſmaller, and paler coloured. The filaments riſe within the inner coronet of the nectarium, and are five in number. They are fixed at the baſe of the rudiment of the fruit, and to the ſtyle, which is there of a column or form, and they ſpread outwards as they riſe in height. They are ſlender, and of an orange-ſcarlet. The buttons that lie on theſe are oblong and obtuſe. From the parts where the filaments are inſerted, the body of the ſtyle riſes upright, columnar and ſtrait; and at its top from an oval bud, which is the rudiment of the fruit, there ſpread three diviſions, which are largeſt towards the extremity, and are there crowned each with a kind of head. The fruit follows ſingly each flower, and is of the ſhape and ſize of an orange, and of a gold yellow.

There are three common kinds of this flower, which are the ſorts chiefly cultivated in all our gardens; they are very hardy, and bear all the ſeverities of our climate as if natives of it; for though the tender branches, and ſometimes the main ſtem are deſtroyed in very ſevere winters, yet it always ſhoots up again from the root.

Culture of the PASSION-FLOWER.

The Laurel-leaved Paſſion-flower is propagated by ſeeds, which ſhould be ſown upon a good hot-bed in the ſpring, and when the plants are fit to be removed, they ſhould be each planted in a ſmall pot filled with good kitchen-garden earth, and plunged into a bed of tanners bark, obſerving to ſhade them from the ſun till they have taken new root, after which they muſt be treated like other tender plants from the ſame climate.

When they are too high to remain any longer under the glaſſes, they ſhould be turned out of the pots, and planted in the ſtove, near the back; and at times give them a little water. Let them be led to climb, by placing ſticks in an oblique direction, and leaning backwards. From time to time let any decayed leaves that are ſeen on them be picked off, and take care to train them to the wall, where their flowers will make a moſt beautiful appearance.

It may alſo be propagated by cuttings, and by laying down the branches, but the plants will never be ſo fine as thoſe raiſed from ſeeds.

The ſame method of culture is proper for all the ſpecies of this plant, which require the heat of the ſtove to preſerve them.

The other three ſpecies, already mentioned, are propagated by laying down their branches, which in one year's time will take good root, and may be removed to the places where they are deſigned to remain.

The beſt ſeaſon for tranſplanting them is the latter end of March or the beginning of April: they ſhould be planted againſt a wall, or other building, which faces the ſouth-eaſt or ſouth-weſt; or elſe mixed among the flowering ſhrubs in quarters of large gardens; in this caſe they muſt be trained up to poles fixed in the earth for that purpoſe, and thus will flower well, and appear extremely beautiful.

The beſt time for pruning them is in the ſpring, and it is a good cuſtom to lay ſome mulch a foot thick, at their roots, which will effectually preſerve them from the ſeverity of the winter, and is neceſſary when they are planted in the open quarters, and have not the defence of a wall behind them. The manner of pruning is to cut off entirely all the weak ſhoots, and ſhorten the ſtrong ones to about three feet in length; when they are planted againſt high buildings, they may be left ſomething longer than this, to fill up the wall; but this is not very neceſſary, for they are quick growing plants, and in open quarters they ſhould always be pruned much ſhorter than this, to bring their flowers nearer the ground.

PEA, *Piſum*, a genus of plants ranged by Linnæus among the *diadelphia decandria*, and of which there are four ſpecies. 1. Pea with the lower ſtipulæ, roundiſh and indented, with taper foot-ſtalks, and many flowers on a foot-ſtalk, or the common Garden Pea. 2. Pea with trifoliate foot-ſtalks, indented ſtipulæ, and one flower on a foot-ſtalk. 3. Pea with foot-ſtalks plain on their upper ſide, an angular ſtalk, arrow-like ſtipulæ, and foot-ſtalks having many flowers. 4. Pea with membranaceous, running foot-ſtalks, having two leaves, and one flower on a foot-ſtalk.

There are a great variety of the firſt ſpecies now cultivated in this country, which are diſtinguiſhed by different names. The ſecond ſpecies grows wild among the corn in ſeveral parts of Europe, and like the firſt is an annual plant. The third ſpecies is a perennial plant, and grows wild near the ſea, in ſeveral parts in the north parts of Europe. The fourth ſpecies is an annual plant, and grows naturally among the corn in Crete and Italy.

Culture of the PEA.

The method of raiſing early Peas is to ſow them under warm hedges or walls about the middle of October. When the plants are come up, their ſtalks are to be kept earthed up, and thus they are to remain till the beginning of February, covering them againſt the ſevere froſt with peas-haulm or other light covering. In January or February a moderate hot-bed muſt be made: the dung ſhould be laid about two feet thick, and carefully beat down, and covered about ſix inches deep with light freſh earth. When the frames have been ſet on about four days, the plants ſhould be tranſplanted to the bed, and ſet in rows at about a foot diſtance, and two inches one from another in the rows. They muſt be watered and ſhaded till they have taken root, after which they ſhould have as much free air as poſſible; and when they begin to fruit they muſt be watered more frequently, which will be a means of their producing a greater quantity of fruit.

The common Dwarf-pea is the ſort always uſed on this occaſion, as all the reſt ramble too much in their ſtalks.

The firſt ſort of Pea, which ſhould be ſown to ſucceed thoſe on the hot-beds, is the hot-ſpur, of which the gardeners diſtinguiſh three or four ſorts, which differ very little from each other; but that called the Golden Hotſpur, is uſually preferred to the reſt.

Theſe ſhould be ſown on warm borders in October, in the ſame manner as thoſe intended for the hot-bed, and treated exactly the ſame: but in ſpring theſe are ſubject to be ſpoiled by ſlugs and other vermin; the beſt method of deſtroying which, is to ſlake a little lime, and throw over the earth among the plants.

Leſt this crop ſhould miſcarry by the ſeverity of the weather, it is always proper to ſow two others after it, at the diſtance of a fortnight each, after which there ſhould be none ſown till the end of January, and after that time two other crops ſhould be ſown at the beginning and end of February.

To ſucceed theſe, which will ſupply the table with early Peas, the Spaniſh Moratto, which is a large Pea, and a very plentiful bearer, ſhould be ſown in rows on a clear plat of ground; the rows ſhould be two feet and a half diſtant, and the Peas dropped at an inch or two aſunder; theſe muſt be all covered very carefully with earth, two inches deep, and the rooks, mice, and other vermin, prevented from getting at them. A fortnight after this, ſome other ſpot ſhould be ſown with this or ſome other large Pea; the ſame ſhould be continued every fortnight till the beginning of June.

Heart PEA, *Cardioſpermum*, a genus of plants of which there are three ſpecies. 1. Heart Pea with a ſmall leaf and fruit. 2. Heart Pea with a large leaf and fruit. 3. Hairy Heart Pea with leaves divided by fives, and thoſe divided again into three parts, which are bluntly cut, and have ſhort foot ſtalks.

Theſe plants grow naturally in both Indies, where they climb upon whatever ſhrubs are near them, and there they riſe to the height of eight or ten feet, but in England they ſeldom riſe above half ſo high; they ſend out many ſide-branches which ſpread to a conſiderable diſtance every way. They are annual, and periſh ſoon after they have perfected their ſeeds.

Culture of the Heart PEA.

All the three ſpecies are propagated by ſeeds, which ſhould be ſown upon a hot-bed in the ſpring, and when the plants are two inches high, they ſhould be tranſplanted into pots, and plunged into a moderate hot-bed, where they muſt be carefully ſhaded till they have taken root, after which they muſt have a large ſhare of freſh air admitted to them every day, to prevent their being drawn up weak: in a little time after they may be removed into a glaſs-caſe, where they may have room to grow, and be ſcreened from the cold of the nights, but in warm weather they will require a large ſhare of air. They will flower in July, and their ſeeds will ripen in autumn.

Sweet-ſcented PEA, a ſpecies of Chickling Vetch. See the article CHICKLING VETCH.

Everlaſting PEA, another ſpecies of Chickling Vetch.

Winged PEA, a ſpecies of Lotus. See the article LOTUS.

PEACH-TREE, *Perſica*, a ſpecies of Amygdalus, or Almond-tree.

The curious in fruits diſtinguiſh forty different varieties of peaches, but many of them ſeem very trifling diſtinctions. The fineneſs of this fruit, in general, depends on the firmneſs of the pulp, the delicacy of the flavour, and the thinneſs of the ſkin. A good peach ſhould be of a fine deep red next the ſun, and of a pale whitiſh hue next the wall; the pulp ſhould be of a yellowiſh caſt, and very juicy, and the ſtone ſhould be ſmall, though the fruit in general be large.

Culture of the PEACH-TREE.

The varieties of the peach are produced like thoſe of the finer flowers, by ſowing the ſeeds, and though many, raiſed this way, will be of little value, as is alſo the caſe in flowers, yet probably among a parcel of ſtones ſaved from the finer kinds of peaches, there would be ſome new kinds produced; which as they were raiſed here, would be eaſily kept up in their perfection; which is not to be expected of thoſe brought from other countries.

The beſt method of ſaving the ſtones, is to let ſome of the fineſt peaches of the beſt kinds hang till they drop off themſelves from the tree; and then the ſtones ſhould be immediately planted on a bed of light rich earth, ſetting them four inches deep in the earth, and about ſix inches aſunder. The beds ſhould be covered, to preſerve them in the winter; and in ſpring when the trees come up, they muſt be cleared of weeds, and well watered. The next ſpring they ſhould be carefully taken up, and planted in the nurſery, at greater diſtances; and after two or three years ſtanding here, they may be removed to the places where they are to remain; or they may, at that time when the condition of their fruit is known, be grafted on other ſtocks, which is the common way now uſed to propagate theſe trees. In order to this, ſome good ſtocks ſhould be provided, which ſhould be of the muſcle, or white pear-plum. When theſe ſtocks are two or three years old, they will be ſtrong enough to bud; and the common ſeaſon for doing this is about midſummer. The buds ſhould be choſen from a healthy tree, which produces a great deal of fruit: they muſt be taken from the trees either in a cloudy day, or elſe in the morning or evening, when the ſun has not much power: they ſhould be then inoculated on the ſtocks as ſoon as poſſible, and the ſtocks treated with the uſual care afterwards.

When theſe are to be tranſplanted where they are to remain, the moſt proper ſoil for them is, a light rich paſture land, taken up with the turf, and rotted together before it is to be uſed. The borders made with this cannot be too wide, and ought to be raiſed five or ſix inches above the level of the ground, and more if the ſoil is moiſt. They muſt be tranſplanted in autumn, as ſoon as the leaves are fallen off; and ſhould never be ſet at leſs than fourteen feet diſtance from one another. The heads of the trees are then to be raiſed up againſt the walls, to keep the roots from being moved by the wind; and they ſhould be watered at times with a noſe on the watering-pot, and the water ſprinkled all over them.

In the middle of May the new ſhoots are to be nailed to the wall, training them horizontally; and the fore-right ſhoots muſt be rubbed of. In October the new branches ſhould be pruned, ſhortening them according to the ſtrength of the tree; if ſtrong, they may be left eight inches long; if weak, they ſhould only be left five; and the ſame care is to be taken of them for the ſucceeding years. There are two general rules always to be obſerved in the pruning of peach and nectarine trees. Firſt, always take care to have enough bearing wood, and ſecondly not to lay in the branches too cloſe to one another. All peach-trees produce their fruit from the young wood either of the ſame, or at moſt of the former year's ſhoot; for this reaſon the branches are to be ſo pruned, as to encourage them to throw out new ſhoots in every part of the tree. This is the method of the ſummer pruning.

The winter pruning is uſually done in February or March, but the beſt time is at Michaelmas, as ſoon as their leaves begin to fall; and the wounds will then have time to heal before the ſevere froſts come on.

In pruning theſe trees it ſhould alſo be obſerved, that it is beſt done under a wood bud, not a bloſſom bud; for if the ſhoot has not a leading bud where it is cut, it will commonly die down to one.

In nailing the ſhoots to the wall, they ſhould be placed at as equal diſtances as poſſible, and ſo far apart that the leaves may have room; and they muſt always be trained as horizontally as poſſible, that the lower part of the tree may be well wooded, which it will not be if the branches are ſuffered to grow upright.

PEAR-TREE, *Pyrus*, a genus of plants, ranged by Linnæus among the *icoſandria pentagynia*.

It is a native of Europe, and our gardens afford a great number of varieties of it from culture, of which we ſhall only mention a few of the beſt; *viz.* 1. The little Muſk-pear, which ripens in July. 2. The Jargonelle, this is one of the beſt ſummer-pears. 3. The Windſor-pear. 4. The Blanquette-pear. 5. The red Orange-pear. 6. The Royal-pear. 7. The Summer-boncretien. 8. The Rouſſellet. 9. The Princes-pear. 10. The Summer-bergamot. 11. The Autumn-bergamot. 12. The Brown-beurré. 13. The Monſieur John. 14. The Flowered-muſcat. 15. The green Sugar-pear. 16. La Marquiſe. 17. The Craſſan. 18. The Colmar. 19. The Vert-longue. 20. The Virgoulé. 21. The Winter-thorn. 22. The St. Germain. 23 The Winter-rouſſelet. 24. The Eaſter-bergamot. 25. The Hollands-bergamot. 26. The Winter-boncretien. 27. The Chaumontelle. (The following are baking-pears) 28. The Pound-pear, or Black-pear of Worceſter. 29. The winter Citron-pear. 30. The Franc-real. 31. The double Flowering-pear, with many other ſorts.

Culture of the PEAR-TREE.

They are all propagated by budding or grafting upon ſtocks of their own kind (commonly called free-ſtocks) or upon quince-ſtocks; the latter are uſed for low walls, dwarfs, or eſpaliers; and eſpecially in wet lands, theſe ſtocks do effectually prevent the too great luxuriancy of the plant, and cauſe it to produce fruit much ſooner than on a pear-ſtock; but then, on the other hand, it has this evil attending it, that the tree is but ſhort-lived, and moſt of the ſorts of hard baking-pears are rendered ſtony and good for little: on the contrary, moſt melting ſoft Pears are greatly improved by being grafted on quince-ſtocks, particularly if the ſoil is of a moiſt ſtrong nature.

The beſt ſeaſon to prune Pear-trees is at the fall of the leaf, though it may be deferred till the ſpring, obſerving to cut out all luxuriant branches, which are known by the great diſtance of their buds, and to lay in no more wood than the roots may be reaſonably ſuppoſed capable of ſupplying with ſufficient juices, leaving them at a diſtance from each other, in proportion to the ſize of the fruit; ſuch ſorts whoſe fruit are ſmall may be allowed five or ſix inches, but the larger ones muſt be not leſs than ſeven or eight inches aſunder, always remembering to train the branches horizontally as they are produced, without topping them, by which means there will be little occaſion for much pruning theſe trees; for it appears, that Pear-trees have their bearing-buds in three different ſtates, continually ſucceeding each other; the blowing-buds of three years old diſcover themſelves at the fall of the leaf, which, whilſt the fruit preceding them was growing and ripening, they were preparing to ſucceed them the enſuing year: theſe buds are produced upon curſons or ſpurs, and are known by their being very full and larger than the others, in a ſeeming ſwelling impatient ſtate of breaking out into its beautiful dreſs of delightful bloom, which is enwrapped within it: the preparative buds of two years are of a ſharp conic figure, and red ruſſet colour, growing very near the fruitful buds before deſcribed: the junior buds of one year are very ſmall, but full above the bark, and always break out near the buds of two years growth: to which may be added, there is a continued ſucceſſion of buds in embryo, ad infinitum.

The diſtance Pear-trees ſhould be planted, either againſt walls or eſpaliers, ſhould not be leſs than thirty feet, for if they have not room to ſpread on each ſide, it will be impoſſible to preſerve them in good order, eſpecially thoſe on free ſtocks, for the more theſe trees are pruned the more they will ſhoot: many ſorts of Pears produce their bloſſom-buds at the extremity of the ſhoots;

ſo that when they are ſhortened the fruit will be cut away, which cannot be avoided where the trees have not room allowed in their firſt planting.

The beſt ſeaſon for planting Pear-trees in a dry ſoil is at autumn, but if the land be moiſt the ſpring is to be preferred.

PEDICLE, that part of a ſtalk which immediately ſuſtains a leaf, a flower, or a fruit, and is commonly called a foot-ſtalk.

PEDUNCLE, ſignifies the foot-ſtalk of a flower only, as Pedicle does the foot-ſtalk of a leaf.

Peduncles are called faſtigiate, when their lengths are ſo proportioned that the flowers which they ſupport form an even ſurface.

PELLITORY *of Spain*, a ſpecies of Chamomile. See the article CHAMOMILE.

PENDULOUS FLOWERS, ſuch as hang downward.

PENGUIN, or *Wild* PINE-APPLE. See the article *Wild* PINE-APPLE.

PENNYROYAL, *Pulegium*, according to Linnæus a ſpecies of Mentha or Mint, but conſidered as a diſtinct genus by other botaniſts.

Culture of the PENNYROYAL.

It propagates itſelf very faſt by its trailing branches, which emit roots at every joint, and ſtriking themſelves into the ground ſend forth new branches; ſo that no more is required in their culture, than to cut off any of theſe rooted branches, and plant them out in freſh beds, allowing them at leaſt a foot from plant to plant every way. Theſe plants love a moiſt, ſtrong ſoil.

PENTAPETALOUS FLOWERS, ſuch as have five leaves.

PENTAPETES, a genus of plants which has no Engliſh name, ranged by Linnæus among the *monadelphia polyandria*; there is only one ſpecies of it.

This plant is a native of India, and grows with a pleaſing wildneſs to the height of two or three feet. The root is fibrous. The ſtalk is ribbed, and of a greyiſh green, freſher towards the top, and at the bottom often purpliſh: it is of a firm ſubſtance, and ſends out many branches. The leaves are numerous and placed irregularly; their colour is a deep but ſhining green, and their form very ſingular and handſome; they are broadeſt at the baſe, long in proportion to their breadth, jagged deeply and irregularly at the edges, and continued to a very long and ſlender point. The flowers are very conſpicuous; they are large and of a moſt beautiful bright red: they riſe from the boſoms of the leaves on the upper part of the plant, and they have ſlender foot-ſtalks; each flower is compoſed of five large petals, and in its centre fifteen filaments: theſe in their lower part unite and form a tubular body, and at their tops are crowned with upright pointed antheræ. Beſide theſe, which are the proper and perfect ſtamina, or filaments of the flower, there are five others, of a peculiar form: they are crooked, and riſe from the tubular body formed by the proper ſtamina, and ſtand regularly between threes of them. The ſtyle is ſingle, and its top or ſtigma thick.

This ſingular flower ſtands in a cup, formed of five ſlender, rough, long leaves, which are woolly within; and it is ſucceeded by a hard and almoſt woody fruit, which holds in ſeveral cells a number of flat ſeeds, edged with membranes.

Culture of the PENTAPETES.

It is propagated by ſeeds, which ſhould be ſown in March upon a hot-bed; and when the plants are fit to tranſplant, there ſhould be a new hot-bed prepared to receive them, into which ſhould be plunged ſome ſmall pots filled with good kitchen-garden earth: in each of theſe let one plant be placed, and give them a little water to ſettle the earth to their roots; they muſt alſo be ſhaded from the ſun till they have taken new root, after which they ſhould be treated in the ſame manner as other tender exotic plants.

When the plants are grown large enough to fill the pots with their roots, they ſhould be ſhifted into larger, and plunged into another hot-bed, where they may remain as long as they can ſtand under the glaſſes of the bed without being injured; afterwards they muſt be removed either into the ſtove or a glaſs-caſe, where they may be ſcreened from the cold, and in warm weather have plenty of freſh air admitted to them.

The plants will flower early in July, and there will be a ſucceſſion of them till the end of September, during which time they make an elegant appearance. The ſeeds ripen gradually after each other in the ſame ſucceſſion as the flowers were produced, and they ſhould be gathered as ſoon as the capſules begin to open at the top.

PEONY or PIONY, *Pæonia*, a genus of plants, ranged by Linnæus among the *polyandria digynia*, and of which he diſtinguiſhes only one ſpecies, which has two varieties, called the Male Peony and the Female Peony, but other botaniſts enumerate ſix ſpecies of this plant.

There are many varieties of this plant raiſed from culture, one of the moſt common, though not leſs beautiful, among theſe, is the great Crimſon Peony, and one of the moſt rare is the dwarf Oriental Peony.

Great Crimſon PEONY. The root of this plant is long and tuberous, brown on the outſide, pale within, and of an unpleaſing taſte. The leaves are large, and irregularly divided into a multitude of parts, which are oblong, uncut at the edges, obtuſe, and of a firm ſubſtance: of a full green on the upper ſide, and pale underneath. The main foot-ſtalks are of a pale green, and the branches which ſupport the diviſions, are often tinged with red. The ſtalk is round, green, thick, irregularly divided, and two feet and a half high; the leaves on this reſemble thoſe from the root, only they have fewer diviſions. The flowers are numerous and extremely beautiful: their firſt appearance is in a vaſt oval bud, of a deep crimſon colour, placed in a ſmall cup formed of five unequal leaves, which are rounded, hollowed, and naturally turn back at the top and ſides: this cup remains with the fruit. The bud by degrees, opening ſeveral ways, diſcloſes itſelf in form of a vaſt ſpecious double flower, compoſed of innumerable petals, all large, and beautifully ſtained with a deep crimſon, but of various ſize and ſhape. The outer petals, or thoſe which riſe immediately within the cup, are large and rounded, theſe are naturally five: the reſt which fill the body of the flower are of irregular and uncertain form, ſome flatted and plain, others waved, curled, and indented at the top: ſome broad and ſhort, others longer and narrow: ſome hollow at the baſe only, others all the way: and not unfrequently there are ſome which mimick the ſhape of the leaves of the plant. The whole is ſtained when the flower is in its plain perfect ſtate, with an uniform deep crimſon; but there are many varieties in this reſpect, ſome are pale, and ſome are tinged with a deeper and a paler red, and with white.

Culture of this PEONY.

The third week in Auguſt dig up a border two ſpades deep, in a place where there is a great deal of ſhade, and ſome moiſture; take ſome of the off-ſets from the root of a thriving plant, let them be large and furniſhed with good buds: plant four of theſe in the bed at a yard diſtance from one another, after which ſow on the ſame ſpot ſome ſeeds ſaved from a fine ſtrong plant; theſe will ſhoot the ſucceeding ſpring, and when they are of a ſize to tranſplant, they ſhould be removed into a like ſituation and ſoil in the nurſery, and kept there till they flower. Some will have double flowers, the fineſt of which ſhould be kept to ſupply the place of the old roots.

The off-ſets ſhould be taken from the parent root every year, to keep the old plants in their beauty; and as they will be ſmall they ſhould be planted out into a nurſery bed till they are of a due bigneſs for flowering with ſtrength, and they muſt then be planted out in various parts of the garden, always obſerving to place them in the ſhade.

Dwarf Oriental PEONY. The root of this plant is tuberous and irregular, compoſed of numerous, oblong, fleſhy parts, connected by long fibres. The leaves are divided in an irregular manner into many ſegments, and theſe are of a firm ſubſtance: on the upper ſide they are of a deep blackiſh green, with white veins, tinged about the baſe with crimſon, and their under ſide is greyiſh. The ſtalk is purple at the baſe, of a pale green upwards, ſmooth, round, firm, upright, and ten inches high, uſually ſingle, and the ſupport of one flower only. The leaves on it are rarely more than two: they are placed at diſtances, one near the ground, and the other not much below the flower; theſe reſemble thoſe from the root in colour and in ſubſtance: they are alſo divided at the edges with the ſame irregularity, and their veins tinged more deeply. The flowers are very large, their colour is ſometimes a pale, and at others a beautiful deep crimſon, but this often varies from culture.

Culture of this PEONY.

This plant is propagated either by ſeeds, or by parting of the roots; but the firſt is the beſt method. For this purpoſe let a part of the garden be choſen in an open elevated ſpot, where rains take their courſe toward the lower ground, or where the drippings of ſome eves of a building fall upon a higher ſpot at a little diſtance. Here dig out a border; and having removed the earth, throw in the following compoſt: Mix four parts of rich meadow mould with one part of rotted dung from an old melon-bed: fill the place with this, level the ſurface, and ſcatter over it the ſeeds gathered from a ſtrong growing plant; no matter for the colour. Sift on a quarter of an inch of mould, and throw ſome buſhes over the ground. The plants will riſe freely, and will only require the uſual care of weeding, and now and then a gentle watering. The ſucceeding autumn there muſt be half an inch of freſh meadow-earth, without any mixture, ſifted over the whole border, and the next ſpring the plants will flower: there will be many degrees of colouring among them, and ſome elegantly painted; the inferior kinds muſt be taken up the following September, and planted out in other places, and the finer plants left at a foot diſtance: let the bed be again refreſhed in autumn with a new covering of mould, and the next ſpring will ſhew their full glory. The mould muſt be drawn up about their ſtems as they riſe, and frequent gentle waterings muſt be allowed to ſwell the flowers.

PEPPER-MINT, a ſpecies of Mint. See the article MINT.

Jamaica PEPPER, CLOVE-TREE, or ALL-SPICE, *Caryophylus*, a genus of plants, of which there are five ſpecies. 1. The Clove-tree with oval, ſpear-ſhaped leaves, growing oppoſite, and flowers terminating the ſtalks, whoſe ſtamina are longer than the petals. 2. The All-ſpice, Pimento, or Jamaica Pepper. 3. Clove-tree, with ſpear-ſhaped leaves placed oppoſite, and flowers growing by pairs from the ſides of the ſtalks. 4. Clove-tree, with oval, blunt leaves placed oppoſite, and flowers growing thinly from the ſides of the branches. 5. Clove-tree, with oblong, oval leaves, which are ſtiff, ſmooth, and indented at the edges, and flowers growing in bunches, terminating the ſtalk.

The firſt ſpecies grows naturally in the Moluccas, and the hotteſt parts of the world. It is the young fruit beat from theſe trees before they are half grown, which are the cloves uſed all over Europe.

The ſecond and third ſpecies are natives of Jamaica. The firſt of theſe is the tree, the fruit of which is well known by the different appellations of Jamaica Pepper, All-ſpice, and Pimento.

The fourth ſpecies is a native of Carthegena in New Spain, and the fifth grows naturally in the iſland of Barbuda.

Culture of the Jamaica PEPPER, *&c.*

The firſt ſpecies is not propagated in this country.

The ſecond, third, fourth, and fifth ſpecies are propagated by ſeeds, but it is difficult to raiſe the plants here. When the plants come up they ſhould be tranſplanted into pots filled with a ſoft loamy earth, and placed in the ſtove: in winter they muſt have but little water. In ſummer a large ſhare of air muſt be admitted to them, and in July if the ſeaſon is warm, they may be placed in the open air in a warm ſheltered ſituation, but at the approach of cold nights they muſt be removed into the ſtove again. When the ſummer is not warm enough to truſt theſe plants abroad, their leaves ſhould now and then be waſhed with a ſponge to clean them, for they are very ſubject to contract inſects and filth by remaining long in the ſtove.

If theſe plants can be obtained from the places where they are native, it will be a much better method than that of raiſing them from ſeeds, which ſeldom ſucceeds. They are all ever-greens, and their foliage, which is a moſt beautiful ſhining green, makes an elegant appearance in the ſtove at all ſeaſons.

Guinea PEPPER, *Capſicum*, a genus of plants, ranged by Linnæus among the *pentandria monogynia*; he enumerates only two ſpecies, of which there are many varieties, but other botaniſts diſtinguiſh many more diſtinct ſpecies; thoſe of Linnæus are, 1. Guinea Pepper, with an herbaceous ſtalk; or the common Indian Pepper. 2. Guinea Pepper, with a ſhrubby ſtalk.

The firſt ſpecies is a native of South America, and an annual plant: the fruit of it makes the moſt wholeſome and beſt pickle in the world.

The ſecond ſpecies is a native of Ceylon, it does not appear to have been raiſed in Europe, which it might be very eaſily, with only the common care allowed to Eaſt-India plants; and its gloſſy leaf and golden fruit would be a great addition to the variety and beauty of the plants kept in our gardens.

Culture of the Guinea PEPPER.

The firſt ſpecies is one of thoſe plants the gardener muſt raiſe on hot-beds in the ſpring, to plant into his borders in the ſummer; to do this properly, ſeveral hot-beds are required, one to ſucceed the other: each is to receive the plants which the former have thrown up from ſeed, or raiſed to ſome bigneſs.

Let the firſt hot-bed be made ready in February, for the end of that month will be the proper time for ſowing the ſeeds, and take care when ſown that they are about three quarters of an inch covered. Common mould does for the firſt bed, but rotted wood, ſome decayed leaves, and about one fifth part of ſand, ſhould be wrought in with the mould of the ſecond.

When the plants have got ſome ſtrength, let them be removed into the ſecond hot-bed, planting them three inches deep, and about eight inches aſunder, taking care to preſerve their roots entire; fill up the holes, and give the plants a gentle watering: they are now to be covered at night, and in the day they are to have air.

In this hot-bed they ſhould ſtand a month, when they muſt be removed to a third hot-bed, and from this, after another month, let them be planted into ſmall pots filled with a fine rich compoſt, as directed for the ſecond bed, and placed in a fourth bed. This fourth and laſt bed muſt have a deep frame, and as many pots as can ſtand by one another muſt be put into it, and the ſpace between them filled up with earth. While they are in this frame the cover muſt be more and more raiſed every day, and after three weeks, taking the advantage of a warm cloudy day, it may be entirely removed: let this be repeated four or five times in ſuch weather, and they will be thus hardened to the air.

In the middle of July they may be planted out into borders, taking all the earth of the pot with them; here they will require gentle waterings from time to time, and with this management they will grow to full perfection.

PEPPERWORT, or DITTANDER. See the article DITTANDER.

PERENNIAL, a term applied to thoſe plants whoſe roots will abide many years, whether they retain their leaves in winter or not; thoſe which retain their leaves are called ever-greens, but ſuch as caſt their leaves are called deciduous, or perdifols. Some of theſe plants have annual ſtalks, which die to the root every autumn, and ſhoot up again in the ſpring, to which Jungius gives the title of *Radix Raſtibilis*.

PERIANTHIUM, a flower-cup ſituated cloſe to the fructification. It ſurrounds the lower part of the flower, and conſiſts of ſeveral leaves, or of one leaf divided into ſeveral ſegments. If it includes the ſtamina and not the germen, it is the Perianthium of the flower; if the germen but not the ſtamina, the Perianthium of the fruit: but if it includes both, it is the Perianthium of the fructification. See CALYX.

PERICARPIUM, among botaniſts; a covering or caſe for the ſeeds of plants; it is the germen of the piſtil enlarged: there are no leſs than nine ſpecies of pericarpia. 1. A Capſule. 2. A Conceptaculum. 3. A Pod. 4. A Ligumen. 5. A Nut. 6. A Drupe. 7. An Apple. 8. A Berry. 9. A Strobilus.

PERYCLYMENUM, a ſpecies of Honeyſuckle. See the article HONEYSUCKLE.

PERIWINKLE, a genus of plants, ranged by Linnæus among the *pentandria monogynia*, and of which there are three ſpecies. 1. Periwinkle, with trailing ſtalks, and oval, ſpear-ſhaped leaves. 2. Periwinkle, with erect ſtalks, and oval leaves. 3. Periwinkle, with oblong, oval, entire leaves, a very long tube to the flower, and a ſhrubby ſtalk.

The laſt of theſe ſpecies is the only one worthy deſcription.

This beautiful plant is a native of Madagaſcar. The root is compoſed of numerous large fibres, connected to an oblong head. The ſtem is woody, and covered with a brown bark: the young ſhoots are green, and the plant in its moſt agreeable form is a ſlight ſhrub about a yard high. The leaves, which are very elegant, are placed in pairs; they are oblong, very broad, undivided at the edges, and of a firm ſubſtance; their colour is a deep green, their ſurface gloſſy, and their veins whitiſh. The flowers crown all the branches in great tufts at their extremities: they are large, and in the higheſt degree beautiful, they ſtand wide expanded, crowding on each other; their colour on the inſide is a delicate crimſon, and on the out of a pearly white.

The body of the flower is formed of one petal, tubular at the baſe, and fully expanded at the verge. The tubular part is longer than the cup, cylindric towards the bottom, broader upwards, and marked with five lines: it has alſo a pentangular mouth. The expanded part is formed of five vaſt ſegments: they are broad, obtuſe, and ſo deeply cut down, that they reſemble ſo many petals, but they are united with the top of the tube. The filaments are five: they are very ſhort, bent backward and forward, and crowned with upright, obtuſe, membranaceous buttons. There are two rudiments with a roundiſh gland affixed to each, and to theſe there is one common ſtyle, ſhort and cylindric; this has two heads: the lower rounded and flat, the upper hollow. Two long pods, formed each of a ſingle valve, and opening longitudinally, ſucceed each flower; the ſeeds are numerous, oblong, and furrowed.

Culture of the PERIWINKLE.

The firſt and ſecond ſpecies are eaſily propagated by their trailing ſtalks, which, after they have taken root, may be cut off and tranſplanted where they are to remain, and there they will ſpread very faſt without any farther care.

The third ſpecies is propagated either by ſeeds or cuttings. If by ſeeds, they ſhould be ſown upon a moderate hot-bed in the ſpring; and when the plants are fit to remove, they ſhould be tranſplanted on a freſh hot-bed at about four inches diſtance, ſhading them from the ſun till they have taken new root; after which they muſt be treated in the ſame manner as other tender plants which are natives of warm countries, but great care muſt be taken not to draw the plants up weak, nor muſt they have much water.

When the plants have obtained ſtrength, they muſt be carefully taken up with balls of earth to their roots, and planted in pots filled with good earth, and plunged into a moderate hot-bed, where they muſt be ſhaded from the ſun, and when they are well rooted in the pots, they muſt be gradually inured to bear the open air; but unleſs the ſummer proves warm they ſhould not be placed abroad, but ſet in an airy glaſs-caſe, and in winter they muſt be removed into the ſtove.

If theſe plants are propagated by cuttings, they ſhould be planted in pots during any of the ſummer months, and plunged into a moderate hot-bed; when they have taken good root they muſt be gradually hardened, and then tranſplanted into other pots, and treated in the ſame manner as the ſeedling plants.

PERSICARIA, *Arſe-ſmart*, a genus of plants, of which there are ſeveral ſpecies, but one of theſe only is worthy a place in our gardens; *viz.* Great Oriental Perſicaria.

This is an erect and very noble plant. The root is fibrous; the ſtalk is green, round, jointed at diſtances, in a conſpicuous manner, and ten feet high: towards the top it divides into numerous branches, and with good management forms a handſome head. The leaves are large and very beautiful; they have ſhort foot-ſtalks riſing from the joints, under the covert of ſome ſlight rough films: they are of an oblong figure, approaching ſomewhat to oval, broadeſt at the baſe, and ſmaller to the point, waved at the edges, and of a fine green. The flowers grow in long ſpikes from the tops of the branches, and alſo from the boſoms of the leaves; they are ſeparately ſmall, but in the ſpike they are very conſpicuous: this, before the flowers open, is of a lively red, with a tinge of crimſon; when they are opened the whole looks conſiderably paler, the buds being much more ſtrongly coloured than the inſides of the flowers.

Culture of the PERSICARIA.

It is propagated by ſeeds, which ſhould be gathered in October, from ſome large heads of a flouriſhing plant: ſpread them upon a papered ſhelf for ten days, after which they muſt be ſown, ſcattering half a dozen of the ſeeds at five or ſix inches diſtance from one another, ſprinkle over them a very ſlight covering of mould.

When the young plants are about four inches high, it will be eaſy to perceive which is the ſtrongeſt; pull up the reſt in each ſpot, and draw ſome mould about the ſtalk of this. As it advances in height, ſuffer a branch to grow, as there naturally will, from the bottom of each leaf: but if theſe ramble out too far in length, afterwards ſhorten them; this will draw ſome juices to the part, and keep the plants ſupplied at the joint: the leaf will alſo be freſh and vigorous, which is a great article. Thus without any farther care the plants left in each ſpot will grow to its full height, and make a very beautiful appearance.

PETALS, an appellation given to the flower leaves, or thoſe of which the corolla conſiſts, in oppoſition to the folia or common green leaves of a plant. A corolla is ſaid to be monopetalous when it has a ſingle Petal, dipetalous when it has two Petals, tripetalous when three, and polypetalous when many.

PETER'S-WORT, a ſpecies of Honeyſuckle. See the article HONEYSUCKLE.

PETIOLE, the foot-ſtalk of a leaf, as peduncle is that of a flower. See PEDUNCLE.

PETREA, a genus of plants, of which there is only one ſpecies.

This is a ſhrubby plant, and a native of La Vera Cruz in New Spain. It riſes with a woody ſtalk to the height of ſixteen feet. The leaves are ſtiff, of a light green, and their ſurface rough. The flowers grow in long, looſe bunches at the ends of the branches, and each ſtands upon a ſlender foot-ſtalk. The empalement of the flower is compoſed of five narrow obtuſe leaves, of a beautiful bright blue. The petals are about half the length of the empalement, and quite white.

Culture of the PETREA.

It is propagated by ſeeds, which muſt be obtained from the places where the trees grow naturally; theſe ſhould be ſown in a good hot-bed, and when the plants come up they ſhould be each removed into a ſeparate ſmall pot, filled with light, loamy earth, and plunged into a hot-bed of tanners-bark, and afterwards placed in the bark-bed in the ſtove, where they ſhould conſtantly remain, and be treated like other plants of the ſame country.

PHEASANT's-EYE, ADONIS, or FLOS-ADONIS, a genus of plants, ranged by Linnæus among the *polyandria polyginia*, and of which there are four ſpecies. 1. Pheaſant's-eye, with eight petals to the flowers, and a ſomewhat cylindric fruit, commonly called Red Morocco. 2. Pheaſant's-eye, with twelve petals to the flowers, and an oval fruit. 3. Pheaſant's-eye, with fifteen petals to the flowers, and an oval fruit. 4. Pheaſant's-eye, with depreſſed fruit, and ſawed, oval, double trifoliate leaves.

The firſt ſpecies grows naturally among the corn in England, and in other countries in the ſouth of Europe. There are two varieties of it, one of which is cultivated in our gardens.

The ſecond ſpecies is a native of Pruſſia, Bohemia, and ſome other parts of Germany.

The third ſpecies is an elegant plant, and native of Siberia and the Appennine mountains. The root is formed of numerous thick and black fibres, ſpreading every way, and entangling variouſly one among another. The firſt leaves are extremely elegant; their colour is a fine deep green, and their foot-ſtalks are purple: they are divided in the pinnated manner, and what may be called the pinnæ, or diſtinct leaves, are oblong, pointed, and have ſome breadth. The ſtalk is round, and thick though low: it would be upright, but that the weight of the flowers is too much for its ſteady ſupport. Where it riſes from the ground it is reddiſh, and there often hang about it a few films of a purpliſh brown; it is of a pale green upwards, with ſome tinge of yellow, and it is all the way duſted with little grey tranſparent globules: theſe are the extremities of ſo many round evaneſcent ſecretory ducts, as the hairs of other plants are the more permanent extremities of theirs. The leaves on the upper part of the ſtalk have leſs breadth, and are more irregularly divided than thoſe at its bottom, but they retain the ſame tinct only fainter. The flower is vaſt, and when the root has ſtood to get good ſtrength, and numerous ſtalks riſe from it together, the tuft is crowned with a continued head of them. The bigneſs of the flower, when the plant thrives perfectly, is that of the largeſt ſingle Anemone: its colour perfect gold. The cup in which it ſtands is very beautiful: five elegant oval leaves compoſe it, and they are of a fine yellowiſh green. The body of the flower is formed of an uncertain number of petals, uſually twelve or thirteen; they are oblong, broad, and irregularly terminated: in the center ſtand numerous ſhort filaments, they form a thick tuft, and each is topped by an oblong and ſomewhat crooked button: in the midſt ſtand numerous rudiments of ſeeds, collected into a kind of head, and on theſe are placed pointed and bent ſtigmata, to receive the duſt from theſe numerous buttons. The fruit is of an oval form, and is compoſed of naked ſeeds, fixed in five ſeries to an oblong receptacle: their ſhape is irregular, angulated, and bent at the top.

The root of the fourth ſpecies is compoſed of numerous white fibres, connected to a ſmall head. The firſt leaves are ſupported on long, firm, whitiſh foot-ſtalks, and each is compoſed of three parts, each part of three leſſer leaves; the natural diviſion of the foot-ſtalk is thus into three parts, and the natural number of leaves on each of theſe are three, but ſometimes they are in the whole fewer, the two ſide diviſions having only two leaves, and the middle one three. Thus the whole radical leaf, when perfect, conſiſts of nine ſmaller leaves, when imperfect of ſeven, and when redundant of thirteen. The ſeparate leaves are of a firm ſubſtance, of an oval figure, notched irregularly at the edges, and of a blackiſh green. The ſtalk is round, firm, branched, and eight inches high. The larger leaves toward the lower part of this are placed in threes, and are of the ſame dark green with thoſe from the root; on the upper part of the ſtalk, and on the branches, they are irregularly placed, and narrow. The flowers terminate all the branches in large numbers, and they are of a faint yellow, with a tinge of green. The cup is compoſed of five ſmall, oval, hollowed, and fading leaves, of a yellowiſh colour. The body of the flower is formed of an uncertain number of petals, from five to fifteen, according to the age of the plant: they are obtuſe, and ſtand open; in the midſt there are numerous ſhort filaments, and in the middle of theſe a cluſter of rudiment of ſeeds: theſe have no ſtyles, but each its proper head, which is pointed and bent back.

Culture of the Pheasant's-Eye.

The variety of the firſt ſpecies is propagated by ſowing the ſeeds in autumn, in a light ſoil, in the borders of the flower-garden: but if the ſeeds of the plants are permitted to ſcatter, they generally ſucceed better than when they are ſown.

The ſecond ſpecies is propagated by ſeeds, which ſhould be ſown ſoon after they are ripe. When the plants come up let them be kept weeded and carefully watered in dry weather, and in the autumn following be tranſplanted to the places in which they are deſigned to remain.

The third ſpecies is propagated either by ſeeds or parting the roots: either way the gardener ſhould chuſe a ſmall ſpot of ground open to the winds, and where the mid-day ſun is in ſome degree kept off by trees: let him take out the mould here two feet deep, and lay on a thin coat of clay, but not too firmly beaten: upon this let him ſcatter ſome large gravel, and then pour in the following compoſt.

Let him dig out ſome paſture-land from under the turf on the ſide of a hill, where the mould is light and mellow, and is accuſtomed to ſome ſettling of wet.

The ſpot being levelled, will ſerve either to receive the parted roots from another place, which ſhould be ſet in the latter end of Auguſt, or the ſeeds. The firſt way is the eaſieſt, but it is from the other we are to expect the fineſt plants.

The method by ſeeds is as follows. When the plants are in flower, let him obſerve the ſtrongeſt root, which he will know by the number and height of the ſhoots. All theſe muſt be cut away, except one; and then with a trowel dig up the ground about the plant, and give it once in two days a little water. When the flower has fallen, and the ſeeds begin to ſhew themſelves of ſome bigneſs, let him forbear watering. When they are grown to a full ſize, and are ſomewhat hardened, he muſt carefully cut off the head, and lay it on a papered ſhelf. When the ſeeds fall off, they muſt be wrapped in paper, and kept till the beginning of September; they ſhould then be ſown thinly upon the piece of ground prepared for them; and an inch of lighter mould ſifted over them: let a few pieces of furze-buſh be thrown upon the bed to prevent accidents; and in dry ſeaſons gently refreſhed with water. After this, when the plants are up, let ſome pea-ſtraw be ſcattered over them in hard weather, and they muſt be kept clear from weeds. In ſpring they ſhould be thinned, by taking up the weakeſt, where they have riſen too thick; and let theſe be planted out into other parts of the garden. Let the others be left at fifteen inches diſtance every way in the ſeed-bed, and not removed afterwards. Thus being allowed full room, and kept free from weeds, they will flower in great perfection.

The fourth ſpecies is propagated by ſeeds, which ſhould be ſown in February, in a pot of common garden-mould, and raiſed in a bark-bed. Two or three of the ſtrongeſt plants muſt be ſaved, and planted out in ſeparate pots, and afterwards brought into the ſtove.

PHEASANT-EYE PINK, a ſpecies of Carnation. See the article Carnation.

PHLOX, a genus of plants of which there are nine ſpecies; among theſe the following is one of the moſt beautiful, and the culture of it is a proper direction for that of all the reſt, *viz.* Phlox with ſmooth, heart-ſhaped, and lanceolated leaves.

This plant is perennial, and a native of North-America. The root is compoſed of innumerable fibres connected to a ſmall head. The ſtalk is upright, firm, and two feet high, rounded, ſomewhat rough on the ſurface, and elegantly ſpotted. The two colours which form the variegation are red and green; when the plant is in its higheſt perfection, they are thrown together upon the ſtalk in irregular lines, and ſpots. The leaves are placed in pairs; they are oblong and moderately broad; heart-ſhaped and largeſt at the baſe, where they embrace the ſtalk, and from thence waved at the edges; ſomewhat broad again near the middle, and ſharp-pointed. Their colour is a freſh green. The flowers are numerous, large, and very beautiful; it is of a pale but delicate red, they are diſpoſed in a great irregular tuft at the extremities of the ſtalks. Each flower has its cup, this is formed of one piece marked with ten ridges, and cut into five ſegments at the rim. One petal forms the flower. The tubular part is longer than the cup, narroweſt toward the baſe, and a little bent; the ſegments of the verge are five, they are large, rounded, and expanded. The filaments are five in number; two are larger, and one is ſhorter than the other two. Their buttons ſtand in the opening of the ſegments. The ſtyle is ſingle, and is of the form and length of the filaments, but is crowned with a three-parted head: it riſes from a rudiment of a conic form, which ripens into an oval capſule, marked with three ridges, formed of three valves, and divided within into three cells, in each of which is an oval ſeed.

Culture of the PHLOX.

The beſt method of propagating this plant is by cuttings, which ſhould be planted in a bed of freſh rich mould, dug up for it in the nurſery, and muſt be duly watered till they have taken root. The beſt ſeaſon for planting them is the middle of May: they will be rooted towards the end of June, and they muſt remain in their places till October, then let them be removed into their places in the borders, and the ground muſt be kept clear about them for a foot and a half every way: this promotes the ſpreading of their fibres, and on this depends the perfection of their flowers.

PHYLICA, a genus of plants, ranged by Linnæus among the *pentandria monogynia*, and of which there are three ſpecies. 1. Phylica, with linear leaves growing in whorls. 2. Phylica, with narrow, awl-ſhaped leaves, hairy at the top. 3. Phylica, with oval, ſcattered leaves.

Theſe are ſhrubby plants, natives of Ethiopia, and all require the ſame culture. The firſt of the ſpecies is the moſt beautiful.

It is about a yard high. The main ſtem is covered with a brown bark, and the young twigs are purpliſh. The leaves are ſmall and numerous: they grow in a kind of circular cluſters round the ſtalk, they are narrow, ſharp-pointed, and of a firm ſubſtance; their colour on the upper ſide is a fine green, and on the lower they are ſilvery. The flowers are very ſmall and white. From the top of the branches, and from their ſides, there riſe ſlender ſhoots two or three inches long, beſet with numerous leaves, and crowned with cluſters of flowers: each ſtands in its ſeparate cup, which is compoſed of three narrow and ſharp-pointed ſegments: this remains when the flower is fallen and becomes the defence of a roundiſh ſeed-veſſel, marked with three ridges, and containing in as many cells, three roundiſh ſeeds, one in each. In the center of the flower, which is tubular at the baſe, and divided into five ſmall ſegments at the rim, there riſe five very ſmall filaments. At the baſe of every ſegment of the flower there ſtands a little ſcale: theſe are five in all, they are ſharp-pointed, and they converge inwards: the five filaments have their inſertion under theſe five ſcales, one riſing under each, and they are terminated by ſmall, roundiſh buttons; the ſtyle is placed among theſe, and is ſmall and undivided.

Culture of the PHYLICA.

This plant is propagated by cuttings, which thrive beſt in the following compoſt:

Take a barrow of earth from an upland paſture, half a barrow of garden-mould, a buſhel of ſand, and half a buſhel of ſaw-duſt: theſe muſt be well worked together in the ſpring, and lie mellowing all ſummer.

In the beginning of the ſucceeding autumn fill a pot with this large enough to hold ten or twelve of the cuttings, which muſt be taken from a thriving plant, and ſet in with great care, obſerving to give them frequent and gentle waterings; the pots muſt be ſet up to the rim in an old bark-bed, and the plants ſhaded with mats. With this management they will ſoon take root, after which they may be treated in the ſame manner as other green-houſe plants.

PIMENTO. See the article *Jamaica* PEPPER.

PIMPERNEL, *Anagàlis*, a genus of plants, ranged by Linnæus among the *pentandria monogynia*, and of which there are four ſpecies. 1. Pimpernel, with undivided leaves, and a trailing ſtalk; or the common red Pimpernel. 2. Pimpernel, with undivided leaves, and an erect ſtalk; or the blue Pimpernel. 3. Pimpernel, with heart-ſhaped leaves embracing the ſtalks, and compreſſed ſtalks. 4. Pimpernel, with ſinuated leaves.

Theſe are all annual plants. The firſt ſpecies is a native of this country, and moſt others in Europe. The native place of the ſecond ſpecies is not known. The third grows naturally in Spain; and the fourth at the Cape of Good Hope.

Culture of the PIMPERNEL.

All the ſpecies are propagated by ſeeds, which ſhould be ſown ſoon after they are ripe. When the plants come up they only require to be kept clear of weeds; and the third and fourth ſpecies muſt be ſheltered from extreme cold.

PINE-APPLE, *Ananas*, a genus of plants, ranged by Linnæus among the *hexandria monogynia*, and according to him a ſpecies of the Bromelia, but conſidered by other authors as a diſtinct genus.

This plant is robuſt, and riſes to the height of two feet and a half. The root is thick and ſends out many ſcattered fibres. The leaves are long and narrow, ſharp-pointed, and of a pale green, with a tinge of blue. In the center of the cluſter of leaves riſes the ſtalk, round, thick, and of a pale green, with two or three little leaves upon it. On its top is placed an oval, pyramidal, fleſhy ſubſtance, formed of many cluſtered tubercles ſupporting the flowers, which are of a beautiful crimſon: this, at its firſt appearance, is green, and in one of the varieties continues ſo when ripe, at which time in ſome of theſe varieties it is oval, in others roundiſh, and in others pointed: in ſome the fleſh is white, in others yellow. On the ſummit ſtands a crown of cluſtered leaves, like thoſe of the plant, and of an elegant blue green. This crown grows in proportion with the fruit, which, when ripe, changes to a bright ſtraw-colour. While it continues to grow, it ſhoots out on all ſides, ſpines or prickles, which, as it approaches towards maturity, dry and ſoften, ſo that the fruit is gathered without the leaſt inconveniency.

There are ſeveral varieties of this plant, but the five following are the principal. 1. The oval Pine-apple, with white fleſh. 2. The pyramidal kind, with yellow fleſh. 3. The ſhining-leaved kind, with ſcarce any ſpines on its edges. 4. The pyramidal olive coloured kind, with yellow fleſh.

Culture of the PINE-APPLE, *according to Mr.* Miller.

Theſe plants are propagated by planting the crowns which grow on the fruit, or the ſuckers which are produced either from the plants, or under the fruit, either of which I have found to be equally good; although, by ſome perſons, the crown is thought preferable to the ſuckers, as ſuppoſing it will produce fruit ſooner than the ſuckers, which is certainly a miſtake; for by conſtant experience I find the ſuckers (if equally ſtrong) will fruit as ſoon, and produce as large fruit as the crowns.

The ſuckers and crowns muſt be laid to dry in a warm place for four or five days, or more (according to the moiſture of the part which adhered to the old plant or fruit) for, if they are immediately planted, they will rot. The certain rule of judging when they are fit to plant, is by obſerving if the bottom is healed over, and become hard; for, if the ſuckers are drawn off carefully from the old plants, they will have a hard ſkin over the lower part; ſo need not lie ſo long as thoſe which by accident may have been broken. But whenever a crown is taken from the fruit, or the ſuckers from the old plants, they ſhould be immediately diveſted of their bottom leaves, ſo high as to allow depth for their planting; ſo that they may be thoroughly dry and healed in every part, leſt, when they receive heat and moiſture, they ſhould periſh, which often happens when this method is not purſued. If theſe ſuckers or crowns are taken off late in the autumn, or during the winter, or early in the ſpring, they ſhould be laid in a dry place in the ſtove, for a fortnight or three weeks before they are planted; but in the ſummer-ſeaſon they will be fit for planting in three or four days.

As to the earth in which theſe ſhould be planted, if you have a rich good kitchen-garden mould, not too heavy, ſo as to detain the moiſture too long, nor over light and ſandy, it will be very proper for them without any mixture: but, where this is wanting, you ſhould procure ſome freſh earth from a good paſture, which ſhould be mixed with about a third part of rotten neats-dung, or the dung of an old melon or cucumber-bed, which is well conſumed. Theſe ſhould be mixed ſix or eight months at leaſt before they are uſed; but if it be a year, it will be the better; and ſhould be often turned, that their parts may be the better united, as alſo the clods well broken. This earth ſhould not be ſcreened very fine; for, if you only clear it of the great ſtones, it will be better for the plants than when it is made too fine. You ſhould always avoid mixing any ſand with the earth, unleſs it be extremely ſtiff; and then it will be neceſſary to have it mixed at leaſt ſix months or a year before it is uſed; and it muſt be frequently turned, that the ſand may be incorporated in the earth, ſo as to divide its parts: but you ſhould not put more than a ſixth part of ſand; for too much ſand is very injurious to theſe plants.

In the ſummer ſeaſon, when the weather is warm, theſe plants muſt be frequently watered; but you ſhould not give them large quantities at a time. You muſt alſo be very careful that the moiſture is not detained in the pots by the holes being ſtopped; for that will ſoon deſtroy the plants. If the ſeaſon is warm, they ſhould be watered every other day; but, in a cool ſeaſon, twice a week will be often enough: and, during the ſummer ſeaſon, you ſhould once a week water them gently all over their leaves, which will waſh the filth off them, and thereby greatly promote the growth of the plants. There are ſome perſons who frequently ſhift theſe plants from pot to pot; but this is by no means to be practiſed by thoſe who propoſe to have large well-flavoured fruit; for, unleſs the pots be filled with the roots, by the time the plants begin to ſhew their fruit, they commonly produce ſmall fruit, which have generally large crowns on them; ſo that the plants will not require to be new potted oftener than twice in a ſeaſon; the firſt time ſhould be about the end of April, when the ſuckers and crowns of the former year's fruit (which remained all the winter in thoſe pots in which they were firſt planted) ſhould be ſhifted into large pots, *i. e.* thoſe which were in halfpenny or three farthings pots, ſhould be put into penny, or at moſt three halfpenny pots, according to the ſize of the plants; for you muſt be very careful not to over-pot them, nothing being more prejudicial to theſe plants. The ſecond time for ſhifting them is towards the latter end of Auguſt, or the beginning of September, when you ſhould ſhift thoſe plants which are of a proper ſize for fruiting the following ſpring into two-penny pots, which are full large enough for any of thoſe plants. At each of theſe times of ſhifting the plants, the bark-bed ſhould be ſtirred up, and ſome new bark added, to raiſe the bed up to the height it was at firſt made; and, when the pots are plunged again into the bark-bed, the plants ſhould be watered gently all over the leaves, to waſh off the filth, and to ſettle the earth to the roots of the plants. If the bark-bed be well ſtirred, and a quantity of good freſh bark added to the bed, at this latter ſhifting it will be of great ſervice to the plants; and they may remain in the tan until the beginning of November, or ſometimes later, according to the mildneſs of the ſeaſon, and will not require any fire before that time. During the winter ſeaſon theſe plants will not require to be watered oftener than every third or fourth day, according as you find the earth in the pots to dry: nor ſhould you give them too much at a time; for it is much better to give them a little water often, than to over-water them, eſpecially at that ſeaſon. You muſt obſerve never to ſhift thoſe plants which ſhew their fruit into other pots: for, if they are removed after the fruit appears, it will ſtop the growth, and thereby cauſe the fruit to be ſmaller, and retard its ripening; ſo that many times it will be October or November before the fruit is ripe: therefore you ſhould be very careful to keep the plants in a vigorous growing ſtate from the firſt appearance of the fruit, becauſe upon this depends the goodneſs and ſize of the fruit; for, if they receive a check after this, the fruit is generally ſmall and ill-taſted.

The method of judging when the fruit is ripe, is by the ſmell, and from obſervation; for, as the ſeveral ſorts differ from each other in the colour of their fruit, that will not be any direction when to cut them; nor ſhould they remain ſo long as to become flat and dead, as they alſo do when they are cut long before they are eaten: therefore, the ſureſt way to have this fruit in perfection, is to cut it the ſame day it is eaten: but it muſt be early in the morning, before the ſun has heated the fruit, obſerving to cut the ſtalk as long to the fruit as poſſible, and lay it in a cool, but dry place, preſerving the ſtalk and crown to it, until it is eaten.

Culture of the Pine-apple, *according to Dr.* Hill.

The two firſt requiſites for cultivating theſe plants are a bark-bed covered with a frame and glaſſes, and a ſtove with its bark-pit. The firſt ſerves to raiſe the ſuckers and crowns to a condition of bearing fruit; and the ſecond is for bringing their fruit to perfection.

Theſe are to be conducted in the following manner:

Let the frame over the bark-pit be built with brick-work, and have flues to warm the air in winter; let its length and breadth be according to the quantity of plants intended to be raiſed, and the bigneſs of the ſtove to be ſupplied from it: but let the depth be ſo much, that the glaſs covering may be three inches above the height of the talleſt plants that need be kept in it, and the whole built firm and ſound.

Let the gardener obſerve to order the bed to be ſomething larger than the common cuſtom, in proportion to the quantity of the plants; for however little the preſent practice ſeems ſenſible of it, the giving the plants room in their infant bed, is the original principle on which the largeneſs of the fruit depends. The ſtove ſhould be built with glaſſes a yard and half high in front, and it ſhould be two yards high at the back. From the top behind to the top of the front glaſſes, ſhould be carried a covering of glaſs, ſloping, and within is to be the tan-bed.

With reſpect of the bigneſs, it muſt be ſuited to the quantity of plants intended to be raiſed: a tan-pit of thirty feet long, and ſeven broad, will conveniently hold a hundred, and the glaſs and brick-work muſt be contrived to ſurround and cover it. The ſtove and frame being thus ſuited to one another, and in readineſs; the compoſt for the plant is next to be conſidered. There have been various kinds employed, but the beſt is this.

Mix together one load of rich light mould from under the turf in a paſture, half a load of river-mud, half a load of rotted dung from an old melon-bed, and two buſhels of fine pit-ſand, with the ſame quantity of old cow-dung: let theſe be very well united by ſtirring, and then thrown up in a ridge, to receive the influence of the air.

When the brick-work is dry and hardened, and the mould and other ingredients in this compoſt are well blended and enriched by frequent turning to the air with a new ſurface, all will be ready for beginning the plantation: this is to be made with the crowns taken from the ripe fruit, with the ſuckers from plants in our own ſtoves, or from plants brought from America.

The latter method is uncertain, and there is a plain objection againſt it, which is there being no ſecurity of having a good kind. The ſugar-loaf ſort, whoſe leaves are ſtreaked on the inſide with purple; or the Montſerrat kind, whoſe leaves are entirely purple or brown within, are to be preferred to all others.

The crowns of theſe, when cut in England, are always ready; and as ſoon as the fruit is cut, proviſion ſhould be made for ſuckers, by cutting the leaves of the plant, taking off the earth from the ſurface, putting in freſh from the bed of compoſt, and ſetting the pot up to the rim in a good hot-bed; it is here to be watered every evening with water that has ſtood in the ſtove: and vegetation being thus promoted, when the ſtalk is cut away, the effort of nature will all be upon the making ſhoots of ſuckers, which will ſerve for the new plantation.

If the plants be procured from America, let them be ſoaked in a ſtrong decoction of wood-ſoot and tobacco, to deſtroy the inſects, with which they commonly are loaded, and which will deſtroy them, and ſpread over every thing elſe in the ſtove, if not killed at firſt in this manner. If the plantation be made in the more uſual way, from crowns and ſuckers of our own produce, there requires a great deal of care, though of another kind.

Let the crown be taken off from the fruit very gently, and the ſuckers drawn away with ſuch caution, as not to break the membrane that naturally ſurrounds them: let the lower leaves be taken off, and let both be laid upon a ſhelf in a warm room, till the bottoms are dry and hardened: for if planted while wet, they will rot.

Let the gardener take this practical caution, that the ſuckers, if carefully drawn off, will be fit for planting much ſooner than the crowns; in general, three, four, or five days lying will do in ſummer, but in winter they take ten days, and will not dry well any where but in the ſtove.

When the bottoms are firm and fit for planting, let the gardener put ſome of his compoſt into as many ſmall pots as he has crowns and ſuckers: he muſt carefully plant one in each pot, and pouring in more compoſt, fix it well; and when all are thus planted, let them be ſet in the bark-bed, obſerving that the bark is of a moderate degree of heat, and ſetting the pots in the bark up to the rim, and at a ſmall diſtance. They are to be kept here during the ſummer, without any farther heat than that of the bark: and in winter, with the help of a gentle warmth; they muſt be watered gently every fourth day in ſummer, and every ſixth in winter.

In the April following they will be fit for putting into large pots, which muſt be done with great care, ſhaking out the plant with its ball of earth entire, and filling it up with more of the compoſt. After this they are to be kept in the ſame manner till the end of July, and then removed once more into larger pots; theſe ſhould not be too large, for ſuch crowd the bed, and rather injure than help the plants. At each time of ſhifting, the bark-bed muſt be ſtirred up, and ſome freſh bark added: the plants muſt then be ſet in again, and gently watered, and after this preſerved in every reſpect as at firſt.

When they ſhew their fruit, the gardener muſt obſerve to remove them no more out of their pots, for this can never be done without giving them a check: and if they receive any when they are ſet for fruit, it will render that fruit ſmall and ill-taſted.

The plants ſhould only be taken out of the tan-bed to the ſtove when they are in a condition of bearing, and in this manner the ſtove will always at the proper fruit ſeaſon, which is from June to the beginning of October, make a very glorious figure, the whole being fruiting plants.

As the fruit are cut, the pots are to be removed and managed for the producing of ſuckers, as already directed in the bark-bed, of which nothing need be done or ſeen in the ſtove. This is the beſt way of managing the plants: and notwithſtanding the ſecond fire that is neceſſary in winter for the bark-bed, it is in the end the cheapeſt.

For thoſe who chuſe to do otherwiſe, the bark-bed may be made in the common way, without any convenience for firing. In that caſe, the plants muſt be removed into the ſtove at the approach of winter, and taken out again in ſpring. The time for planting depends upon the ripening of the fruit, from which the crown is taken, or from whoſe root, after cutting, the ſuckers are raiſed; ſo that no week or month can be allotted, but they muſt be taken when ready.

At the time of planting and removing them into large pots, let there be always a few ſtones put in the pot over the hole for the diſcharge of water, that it may always keep open: for if it ſhould fill up, and the wet be detained, it would certainly rot the plant. What the gardener underſtands by a three-farthing pot is the full bigneſs for planting the ſuckers and crowns at firſt, and for many of them a halfpenny pot will do. The firſt removal ſhould be into penny pots or three-halfpenny ones, according to their ſize: and the laſt into two-penny pots, theſe being the fitteſt ſize for the fruiting plants.

The two dangers to which theſe plants are expoſed, while the due degree of heat is allowed them, is to be deſtroyed by inſects, or choaked for want of air. The inſects muſt be waſhed off with a ſpunge, dipped in a decoction of wood-ſoot and tobacco; and the other accident is to be prevented by raiſing the glaſſes in the middle of the day with a notched ſtick.

The degree of heat when fires are employed, is perfectly to be regulated by the thermometers made for that purpoſe, and marked with the name of the plant at the due degree. It is impoſſible to keep the heat always to this exact line: but if the gardener takes care never to let it riſe above four or five degrees higher, or fall four or five degrees lower than the mark, he will never hurt his plants.

Culture of the Pine-apple, *according to the late Mr.* Allen.

Let the Pine-apple plants be planted as ſoon as poſſible, in pots of about eight or nine inches in diameter, and plunged into a bed of tanners bark, about three feet and a half thick; and let the laſt half foot on the top of the bed be old tan that has loſt its heat, which will prevent the plants being ſcorched at the roots. In September ſhift them into large pots with all the earth about them: at the ſame time ſhaking up the tan to the bottom of the pit, adding ſome freſh to keep it up to its proper height; ſtill obſerving to keep about ſix inches of old tan at the top. This will be ſufficient to keep them till they ſhew their fruit, which will probably be in February or March; when being prepared with a bed of freſh tan, cover it over about two inches thick with earth; then turn the plants out of the pots, without diſturbing the roots, and place them on the bed at proper diſtances, filling up the interſtices with good earth; where they may remain till the fruit is ripe: water them about twice a week all over the bed, but not on the fruit.

There may be a few objections raiſed againſt this method, the principal of which is, That thoſe plants which do not ſhew when they are turned out of the pots, there is a great probability of their paſſing the ſummer without fruiting; or, if there ſhould be any that ripen late, the houſe cannot be at liberty to receive the plants for the ſucceeding year; and if it is all new tan, as propoſed, it is apt to cake and want freſh ſtirring when the fruit is three parts grown, in order to ſwell the fruit out to a large ſize.

There are two ſorts of the Ananas principally cultivated in England; one called the Queen-pine, the other the Montſerrat. The Queen is moſt eſteemed among the gardeners, as being more regular and certain in their bearing; whereas the Montſerrat ſort frequently miſs the proper ſeaſon; and many that are brought from that iſland, though fine plants to look at, are apt to produce but trifling fruit. One cauſe of this, perhaps, may be, the ill choice that is made in promiſcuouſly taking the ſuckers from the plants that have produced indifferent fruit.

It generally happens that Pine plants which are brought from the Weſt Indies, have a white inſect adhering to them, and which, if not deſtroyed, may infect a whole houſe of plants to their great prejudice, as they never thrive while theſe inſects prey on them. Some gardeners infuſe the plants in tobacco water, in order to deſtroy theſe inſects, but this often rots the plants: a much better method is, when the plants arrive, to ſtrip the ſmall leaves from the roots, and clean them dry; for it is in that part theſe inſects moſtly harbour. While the bottoms of the plants are hardening, make a hot-bed with dung, and lay ſeven or eight inches of old tan on it, which cover with glaſſes. When the violence of the heat is a little abated, ſtick the plants in the tan, and let them remain there about three weeks; by which time they will be fit for potting, and the inſects entirely deſtroyed by the ſteam of the dung. As for plants that do not immediately come from abroad, they are never troubled with theſe inſects, unleſs the waterings have been neglected, or the plants by ſome other means are become unhealthy; for they will not prey upon any perfectly healthful plant.

The following Eſtimate of the Expence of building a Stove for raiſing Pine-apples; *together with the annual Charges for Tan, Labour, &c. appeared in the* Muſeum Ruſticum, *Vol. III. Pag.* 142.

A ſtove, forty feet long, and twelve wide, is the proper ſize for one fire-place, and contains as much air as one fire will properly warm: I ſhall therefore calculate my expences for one of that ſize, and particularly as it will produce about one hundred and fifty pines a year, which is fruit enough for a moderate-ſized family.

The height in front is three feet, and the back part about ſeven feet.

The front, one end, and roof to be of glaſs, the other end brick, where ſhould be a room about twelve feet ſquare, and it ought not to be leſs, for the convenience of laying the fuel, and for making the fire.

As to the dimenſions of the flues, &c. it is not neceſſary here to inſert them; but I will beg leave to refer any gentleman, who wants to build one, to that ingenious bricklayer, Mr. Salter Field, of Walton upon Thames, who has ſhewed great ſkill and judgment in building ſeveral.

The expence of building ſuch a ſtove will be about eighty pounds, ſuppoſing all the materials to be new, and at the prices given in London and its neighbourhood; but if you have the conveniency of a wall ready built to erect it againſt, it will ſave about fifteen pounds.

The price of the plants will be according to their ſizes, from two or three ſhillings each to ten or twelve, and entirely depends on how long you will wait for fruit, and whether you will buy ſuch as will produce fruit of only one pound weight each, or two or three pounds; but about fifty pounds will ſtock it properly at firſt, to have fruit immediately.

The yearly Expences as follows.

	l.	s.	d.
Eight hundred buſhels of tan to fill the pit at firſt, at three half-pence per buſhel	5	0	0
Sixteen loads carriage	0	16	0
Three chaldrons and a half of coals, at thirty-ſix ſhillings per chaldron	6	6	0
Two hundred buſhels of tan more, to keep the bed level with its former height, at three half-pence per buſhel	1	5	0
Four loads carriage	0	4	0
Filling the pit with tan, and planting the pots, two days, two men, at two ſhillings a day each	0	8	0
Stirring the tan up, and adding freſh four times more, at ditto	1	12	0
The time in attending the fires, watering, &c. is worth at the moſt eighteen-pence a week, which comes to	3	18	0
Repairing the windows, painting, and white-waſhing	1	11	0
Total	21	0	0

The Pine-apple may alſo be raiſed without the help of a ſtove in a hot-bed of tanners-bark, with the frame we have already deſcribed under the article Hot-bed. But as theſe plants continue for a time in the bed, the heat of which will decay in a few months, it will be neceſſary to have two of theſe beds contiguous to one another; and if the frame be made to ſlide from one bed to the other, it will be ſufficient to anſwer the purpoſe, otherwiſe there muſt be a frame for each. By the help of this additional hot-bed the plants may be kept in the ſame degree of warmth, by removing them from one bed to the other. But it will not be neceſſary to remove them as ſoon as the heat begins to decay in the firſt bed; becauſe it may be renewed by making a good lining of horſe-dung, as is commonly practiſed in raiſing cucumbers and melons. By this means the heat of the firſt bed may be continued a very conſiderable time; and when it begins to decay, the ſecond bed muſt be ready for the reception of the plants; and after a proper time the firſt new made. By this method of removing the plants from one bed to the other, they will always have a proper degree of heat, and will produce fruit equal to any raiſed in the ſtoves. But the utmoſt care muſt be taken to give the plants as much air as poſſible; for nothing ſo much contributes to their growth, and preſerving them in a healthy ſtate, as freſh air; nor is any thing more deſtructive to them, than the putrid confined air of a hot-bed. If you have not the convenience of procuring a ſufficient quantity of tanners-bark; the bed may be made with horſe-dung, provided the ſurface of the dung be covered with bark for the reception of the pots.

By this ſimple method, and obſerving the directions given in the preceding part of this article, with regard to the compoſt, and the management of the plants, very fine Pine-apples may be raiſed at a very ſmall expence.

PINE-TREE, *Pinus*, a genus of plants ranged by Linnæus among the *monoecia monadelphia*. There are ſeveral ſpecies of it, the two following of which are the beſt worth cultivating, *viz.* Pine-tree with two ſhort grey leaves proceeding out of each ſheath, and ſmall acute-pointed cones; called Scotch Pine, or Fir. 2. Pine-tree with five rough leaves in each ſheath; commonly called Lord Weymouth's Pine.

The firſt ſpecies is a native of the mountains of Scotland, and is common in moſt parts of Europe; and the ſecond grows naturally in North America, where it is called the white Pine.

Culture of the Pine-tree.

Theſe and all other ſpecies of the Pine-tree, are propagated by ſeeds. The ripe cones of theſe trees are either to be expoſed to a gentle heat, or ſoaked for twelve hours in warm water; after which the ſeveral cells will open, and the ſeeds fall out. Theſe ſeeds muſt never be taken out till the time of ſowing them, which is March. The ground they are to be ſown in, muſt be carefully turned ſeveral times, to deſtroy the roots of weeds. For a large plantation, the beſt method is to plough it ſeveral times; after this the earth ſhould be levelled with a ſpade in ſmall ſpots at every ſix feet ſquare; in each of which ſpots, ten or twelve ſeeds are to be ſown, and covered with ſome of the ſame mould broken fine; they are then to be covered with a furze-buſh, or other ſuch covering; and this is to remain for ſome time after the plants are come up, but care muſt be taken not to cover them too cloſe; when this is taken off, a little looſe earth is to be drawn about the ſtems of the plants, and ſome furze ſtuck about them to keep off the too great heat of the ſun. There are uſually from twelve ſeeds eight plants, and theſe may be left ſtanding together till the third year.

In March or April, the third year after ſowing, the plants are to be removed to the place where they are to ſtand, and planted at eight feet ſquare diſtance, or greater if deſired. Two plants muſt always be left in each cluſter, and great care taken not to injure the roots of them. The others muſt be taken up with as much earth about their roots as poſſible. When they are ſet in the new plantation, there muſt be ſtakes fixed near them to tie them to, ſo as to prevent the wind from blowing them down, and the roots muſt be covered with litter, and have a gentle watering to ſettle the earth to their roots. If the weather ſhould prove very dry, this may be repeated two or three times, but a little at a time; over-watering kills all new-ſet trees, and the cutting any of the heads or branches of the reſinous kinds is a very dangerous thing. The Scotch Pine delights in a chalky ſoil on the ſide of a hill, but will alſo grow in gravel, and in any ground that is not too wet.

The common fir loves a loamy ſtrong ſoil, and is a native of low flat grounds; and moſt of the American firs and Pines love a looſe moiſt ſoil. The ſilver fir, and the manured Pine, love a dry ſituation, but muſt have a deeper ſoil than the Scotch Pine, and muſt be ſheltered from the north winds. The two trees left in each ſpot of the place where they were ſown, may be left together ſeven years, then the leaſt flouriſhing tree is to be carefully removed.

PINK, a ſpecies of the carnation. There are many varieties of the Pink now cultivated in the gardens, *viz.* The Damaſk-Pink, the White-Shock, the Pheaſant's-eye with double and ſingle flowers, the common red Pink, Cob's Pink, Dobſon's Pink, white Cob Pink, and Bat's Pink.

Culture of the PINK.

The common Pinks are propagated either by ſeeds, which is the way to obtain new varieties, or by making layers of them, or by planting ſlips.

If they are propagated by ſeeds, thoſe of the beſt ſort ſhould be ſown in the ſpring, and the plants treated in the ſame manner as directed for the Carnation, with this difference only, that as the Pinks are leſs tender, ſo they may be more hardily treated; thoſe which are propagated by layers, muſt alſo be managed as the Carnation.

The beſt time to plant the ſlips of Pinks is about the end of July; and if the weather ſhould prove very dry they muſt be conſtantly watered every other day, till they have taken root. Theſe ſhould be planted in a ſhady border, and the ground well dug, and ſoaked with water a few hours before the ſlips are planted; they muſt be planted at about the diſtance of three inches ſquare; the ground ſhould be cloſed very hard about them, and they muſt be well watered till the cuttings have taken root; after which they will require no other care, but to keep them clear from weeds till autumn, when they ſhould be tranſplanted to the borders of the flower-garden, where they are deſigned to remain.

PIONY, or PEONY. See the article PEONY.

PIPE-TREE, *Syringa.* See the article SYRINGA.

PIPPERIDGE-PUSH, or BERBERRY-TREE. See the article BERBERRY-TREE.

PISHAMIN, or PERSIMON, a ſpecies of Dioſpyros; and is ſometimes called the Pitchumon Plum.

This tree is a native of America, where it riſes to the height of twelve or fourteen feet, bearing a fruit which the inhabitants keep till rotten before they eat it, as is practiſed by medlars in England.

Culture of the PISHAMIN.

This tree is propagated in the ſame manner as the INDIAN DATE PLUM, to which article we refer the reader.

PISONIA. See the article FINGRIGO.

PISTACIA, the name of a genus of plants, which comprehends the Piſtacia Nut-tree, the Turpentine-tree, and the Maſtick-tree; ranged by Linnæus among the *dioecia pentandria*, and of which he diſtinguiſhes only the ſix following ſpecies, but other authors enumerate nine: 1. Piſtacia with trifoliate leaves. 2. Piſtacia with winged, trifoliate, and almoſt round leaves. 3. Piſtacia with unequal winged leaves, the lobes of which are ſomewhat oval, and recurved, being the Piſtacia tree. 4. Piſtacia, with unequal, winged leaves; the lobes of which are oval and ſpear-ſhaped, or the Terebinthus, or common Turpentine-tree. 5. Piſtacia, with abrupt, winged leaves, and ſpear-ſhaped lobes, or the Lentuſcus, or common Maſtick-tree. 6. Piſtacia, with winged, deciduous leaves, the lobes of which are oval.

All theſe ſpecies are ſhrubby plants. The firſt ſpecies is a native of Sicily; the ſecond grows naturally in the ſouth of France; the third in Perſia, Arabia, Syria, and India; the fourth in the ſouthern parts of Europe, in the northern parts of Africa, and India; the fifth is a native of Spain, Portugal, and Italy; and the ſixth is a native of Jamaica.

Culture of the PISTACIA.

The four firſt ſpecies are propagated by the nuts, which ſhould be ſown in pots, filled with light kitchen-garden mould, and plunged into a moderate hot-bed, to bring up the plants; which, when they appear, ſhould have a large ſhare of air admitted to them, and by degrees be hardened to bear the open air, to which they are to be expoſed about the beginning of June. In autumn they ſhould be placed under a hot-bed frame.

In the ſpring, before the plants begin to ſhoot, let them be tranſplanted each into a ſeparate pot, and as ſoon as they begin to ſhoot, they muſt be gradually hardened, and placed abroad. They may thus be kept in pots four or five years, till they have acquired ſtrength, during which time they ſhould be ſheltered in winter; after this they may be turned out of the pots, and planted in the full ground in a ſheltered ſituation. They flower and produce fruit in this country, but the fruit never ripens.

The fifth ſpecies is propagated by laying down the young branches; which, when they have put out roots, ſhould be cut off from the old plants, and each tranſplanted into ſeparate ſmall pots; in winter they muſt be ſheltered, and in ſummer placed abroad in a warm ſituation, and managed in the ſame manner as other hardy kinds of green-houſe plants. It may alſo be propagated by ſeeds in the manner directed for the preceding ſorts.

The ſeeds of the ſixth ſpecies muſt be ſown in pots filled with light freſh earth, and plunged into a good hot-bed of tanners-bark; when the plants are come up fit to remove, they ſhould be each planted in a ſeparate ſmall pot, and plunged into a freſh hot-bed. In autumn they ſhould be removed into the ſtove, and placed in the tan-bed: during winter they ſhould have but little water, eſpecially if they caſt their leaves, which they generally do after the firſt winter.

Theſe plants muſt conſtantly remain in the ſtove; admitting a large quantity of air to them in warm weather.

PISTIL, *Piſtillum*, among botaniſts, denotes the female organ of generation in flowers, and is defined, by Linnæus, as an entrail of the plant, deſigned for the reception of the farina, or male-duſt, wherewith it becomes impregnated; it conſiſts of three parts, *viz.* the germen, ſtyle, and ſtigma; the germen is the rudiment of the fruit, accompanying the flower, and is of various ſhapes, but always ſituated below the ſtyle, or ſtigma, and contains the embryo ſeeds; the ſtyle is the part that ſerves to elevate the ſtigma from the germen, and is alſo of different forms; the ſtygma, which is of various ſhapes likewiſe, is always placed on the top of the ſtyle, or, if that be wanting, on the top of the germen; this part is covered with a moiſture, for the breaking of the farina into more minute parts.

PISTOLOESIA, a ſpecies of Birthwort. See the article BIRTHWORT.

PITCH-TREE, a ſpecies of the Fir-tree. See the article FIR-TREE.

PITCHUMON PLUM. See the article PISHAMIN.

PITH, in vegetation, the ſoft ſpongy ſubſtance contained in the central parts of plants and trees.

As the ſubſtance of the trunk in trees, ſays Boerhaave, become more woody, the pith is compreſſed and ſtraighted to ſuch a degree, that it wholly diſappears. It is plain from this, that the office of the pith in vegetation cannot be very great, ſince it is not of perpetual duration. By its ſpungy ſtructure, it ſeems fitted to receive any ſuperfluous moiſture, that might tranſude through the pores of the woody fibres. If by the exceſs of ſuch moiſture, or from any other cauſe, it happens to rot and periſh, as frequently happens in elms, the tree is found to grow full as well without it; a proof it is of no eſſential uſe in vegetation.

PLAINTAIN-TREE, *Muſa*, a genus of plants of which there are two ſpecies. 1. The Plaintain-tree. 2. The Banana.

The firſt ſpecies is cultivated in all the Weſt Indian iſlands; it riſes with a ſoft herbaceous ſtalk fifteen feet high, and upwards; the lower part is eight or nine inches diameter, diminiſhing gradually to the top, where the leaves come out on every ſide; theſe are often ſix feet long, and near two feet broad, having a ſtrong fleſhy mid-rib, and a great number of tranſverſe veins running from it toward the edges: theſe leaves come out from the center of the ſtalk, and are rolled up at their firſt appearance; but when they are advanced above the ſtalk, they expand quite flat and turn backwards: when the plant is grown to its full height, the flowers will appear in ſpikes in the center, which are often four feet in length; on the lower part of the ſpike they are largeſt, diminiſhing in their ſize upwards; each of theſe ſpikes is covered with a ſheath of a fine purple colour within ſide, which drops off when the flowers open: the upper part of the ſpike is covered with barren flowers, which fall off with their covers. The fruit is about eight or nine inches long, and above an inch in diameter, having three blunt angles, and is a little incurved; it is at firſt green, but when ripe, of a pale yellow colour; the ſkin is tough, and within is a ſoft pulp of a luſcious ſweet flavour: the ſpikes of fruit are often ſo large, as to weigh upwards of forty pounds each.

The fruit in the Weſt Indies is generally cut before it is ripe, and roaſted in the embers, and eaten by the negroes as bread. The leaves are uſed for napkins and table-cloths, and are likewiſe food for hogs.

The ſecond ſpecies differs from the firſt, in having its ſtalks marked with dark purple ſtripes and ſpots. The fruit is rounder, and of a more luſcious taſte.

Culture of the PLAINTAIN-TREE.

Both theſe ſpecies are propagated by ſuckers, which ſhould be carefully taken off while young, preſerving ſome fibres to their roots, and planted in pots filled with light rich earth, and plunged into the tan-bed in the ſtove. This may be done any time in the ſummer.

When they have been ſome time in the pots, ſhake them out, with the ball of earth to their roots, and plant them into the tan-bed in the ſtove, laying a little old tan near their roots, for their fibres to ſtrike into.

When the bark-bed wants to be renewed with freſh tan, there ſhould be great care taken not to injure the roots of theſe plants, and a large quantity of the old tan ſhould be left about them; for the new tan, if laid too near them, will ſcorch their roots.

During the ſummer ſeaſon theſe plants muſt be plentifully watered; and in winter it muſt be given them often, but in ſmall quantities.

The ſtoves for them ſhould be at leaſt twenty feet in height, otherwiſe there will not be room for their leaves to expand.

PLANE-TREE, *Platanus*, a genus of plants, ranged by Linnæus among the *monoecia polyandria*, and of which there are only two ſpecies. 1. Plane-tree, with hand-ſhaped leaves. 2. Plane-tree, with lobated leaves.

The firſt ſpecies grows naturally in many parts of Aſia, where it riſes to a very great ſize; the ſtem is tall, erect, and covered with a ſmooth bark, which annually falls off; it ſends forth many ſide branches, which are generally a little crooked at their joints: the bark of the young branches is of a dark brown, inclining to a purple colour; theſe are furniſhed with leaves placed alternately, their foot-ſtalks are an inch and a half long, the leaves are ſeven inches long, and eight broad, deeply cut into five ſegments, and the two outer are ſlightly cut again into two more; theſe ſegments have many acute indentures on their edges, and have each a ſtrong mid-rib, with many lateral veins running to the ſides; the upper ſides of the leaves are of a deep green, and the under pale. The flowers come out upon long foot-ſtalks, or ropes, hanging downward, each ſuſtaining five or ſix round balls of minute flowers; they come out at the ſame time as the leaves; and in warm ſummers the ſeeds ripen late in autumn, and if left on the trees will remain till ſpring, when the balls fall to pieces, and the briſtly down which ſurrounds the ſeeds helps to tranſport them to a great diſtance with the wind.

The ſecond ſpecies is a native of North America; this tree alſo arrives to a great ſize; the foot-ſtalks are longer and the leaves larger than the other ſort; they have ſeveral acute indentures on their borders, and are cut into three lobes or angles; the flowers grow in round balls, like the former, but are ſmaller.

There are alſo two other ſorts, called the Maple-leaved Plane, and the Spaniſh Plane-tree, ſomewhat differing from the others in foliage.

The oriental ſort was introduced into Italy in the early times of the Romans; their greateſt men took much pleaſure at their villas, which were ſurrounded with Plane-trees. Pliny affirms, that there was no tree whatſoever which ſo well defends from the heat of the ſun in ſummer, nor more kindly admits it in winter, than this plant, the branches being produced at a proportionable diſtance to the largeneſs of their leaves; ſo that when the leaves are fallen in winter, the branches very eaſily admit the rays of the ſun. And ſo much was this tree held in eſteem by the people of Aſia, that wherever they erected any grand buildings, the porticoes which opened to the air, terminated in groves of theſe trees.

Culture of the PLANE-TREE.

The firſt ſpecies is propagated either from ſeeds or layers. The layers will take root in about a year, when they ſhould be cut off from the old trees, and planted in a nurſery, where they may ſtand two or three years to get ſtrength, after which they ſhould be tranſplanted to the places where they are to remain.

But the plants thus raiſed ſeldom make ſuch ſtrait trees as thoſe produced from ſeeds, which ſhould be ſown in a moiſt, ſhady ſituation, ſoon after they are ripe, and when the young plants come up they muſt be treated in the ſame manner as thoſe raiſed from layers.

The ſecond ſpecies will ſucceed extremely well from cuttings, which ſhould be planted about the beginning of October, upon a moiſt ſoil, and watered in dry weather: in which caſe they will make a prodigious progreſs, and in a few years afford noble trees for planting avenues and other ſhady walks.

Both theſe ſpecies thrive beſt in a moiſt ſoil, and near rivulets of water.

PLANT, *Planta*, is defined to be an organical body, deſtitute of ſenſe and ſpontaneous motion, adhering to another body in ſuch a manner as to draw from it its nouriſhment, and having power of propagating itſelf by ſeeds. As to the parts of which a plant conſiſts, they are the root, ſtalk, branch, leaf, flower, and fruit.

All botaniſts are of opinion that there is a certain analogy between plants and animals, ſince plants, like animals, are compoſed of certain parts, veſſels, &c. each kind of veſſel being ſuppoſed the vehicle of a different humour or juice, ſecreted from the matter of the ſap, which is conſidered as the blood or common fund of them all: two things are to be conſidered in plants, viz. the ſenſible and organic body, and the ſpirit or the vegetative body, which is the cauſe of the whole motion, and the principle of all vital functions. The ſpirit or active ſubſtance, which obtains the name of ſoul in living bodies, is not even entirely excluded from things deſtitute of life, ſince the ſubtile matter being carried by a perpetual motion, runs through the whole corporeal nature; but as it is too much diſperſed in bodies deprived of life, nor can find in them pipes and receptacles wherein it could be gathered in a greater quantity, thereby it could expel the humours it ſhould meet with, and not produce in them thoſe vital motions of nutrition and acretion; hence foſſils and other inanimated bodies are of a longer duration, becauſe not diſturbed or worn out by that vegetative and active ſubſtance: but in plants, as well as in animals, the active ſpirit continually agitated by the ſubtile matter, runs without intermiſſion throughout the whole body; and the more or leſs it is agitated, it wants a greater or leſs quantity of aliment, to avoid its feeding at laſt on the ſubſtance of the living body.

Plant and vegetable are nearly ſynonymous, every plant being a vegetable; which Bœrhaave defines to be a body generated of the earth to which it adheres, and is connected with it by parts called roots, through which it receives the matter of its nouriſhment and increaſe, and conſiſts of juices and veſſels ſenſibly diſtinct from each other: or a plant is an organical body compoſed of veſſels and juices every where diſtinguiſhable from each other, to which the roots grow, or parts by which it adheres to ſome other body, and from which it derives the matter of its life and growth. This definition is very ſcientific, and furniſhes a juſt and adequate idea of a plant; for by its conſiſting of veſſels and juices, it is diſtinguiſhed from a foſſil; and by its adhering to another body, and deriving its nouriſhment therefrom, and being deſtitute of ſenſation, it is diſtinguiſhed from an animal; the mimoſa, or ſenſitive plant, approaching the neareſt to it.

The veſſels, or containing parts of plants, conſiſt chiefly of earth bound or connected together by oil. In plants burnt by the intenſeſt fire, the earth or matter of the veſſels is left intire and indiſſoluble by its utmoſt force; and conſequently the matter thereof is neither water, air, ſalt, nor ſulphur, but earth alone.

The ſtudy of plants is both innocent and delightful; whoever applies himſelf to it will be ſoon agreeably ſurpriſed with the capacious field it opens for inquiry, where the human mind may range at large, and every day make freſh diſcoveries equally uſeful and entertaining. Now as every country hath its ſpontaneous plants, to raiſe and cultivate them in climates different from their own, requires much ſkill and art; for the plants of cold climates will not bear the heat of warm ones, any more than thoſe of the warm can ſupport the cold. Some of the Cape plants, in the midſt of the torrid zone, grew at firſt amazingly, but ſoon after they loſt their leaves, and were with difficulty kept alive: in this there is a conſiderable latitude to be allowed, for plants may be raiſed in a climate not their own, provided the difference is not very great; for by degrees they become as it were naturalized to it (this is evident in moſt of our culinary plants, fruit-trees, wheat, &c. which originally came from foreign countries) for if they produce ſeeds, theſe ſeeds are much leſs apt to miſcarry, and produce hardier plants than ſuch as are brought immediately from their native country. Now if we attentively conſider the circumſtances in which particular plants are ſpontaneouſly produced, we ſhall directly diſcover a ſure and ſucceſsful method of cultivating them by art. Linnæus juſtly obſerves, in a curious paper upon this ſubject, in the firſt volume of the Swediſh acts, that the directions given in many books of gardening are founded merely random practice; it being from wild plants alone that a rational method of culture can be deduced. He adds, that all plants grow ſomewhere wild, and that the buſineſs of art is to imitate their natural climate.

It was by following nature that the ingenious botaniſt abovementioned has been ſo ſucceſsful in bringing up the vaſt variety of plants that have fallen under his care. The rubus caule unifloro foliis ternatis was ſome time ago, he tells us, thought incapable of being raiſed about Stockholm, till attention to its natural climate taught him to keep it covered with ſnow during the winter and great part of the ſpring. The Muſa, or Plaintain-tree, the moſt ſpecious plant in nature, had ſtood near an hundred years in the Dutch botanical garden, and could not be made to blow; but on conſidering it was a native of Surinam, where the weather is dry for near half the year, and rainy the next, it was kept long without water, and afterwards kept watered abundantly, which cauſed it to flower and perfect its fruit; and by the ſame management, another Muſa was made to flower the next year.

Growth of PLANTS. When a ſeed has laid all the winter in the ground, without any ſigns of germination, in the ſpring, as the ſeed is diſtended by the heat of the ſun, though never ſo little, there muſt be ſome vacant ſpaces left within it: and as fluids preſs every way, the nutritious juices of the earth, with which the ſeed is ſurrounded, will enter the hole which is at the end thereof, and fill up theſe vacancies. When they have once penetrated the ſeed, being extremely active, they enter the pores of the lobes, for the ſame reaſon that they firſt entered the ſeeds; from hence they are communicated to the radicle and plume, which are thereby diſtended, or, as it were unfolded. And thus is the circulation of the infant plant carried on, till the radicle by degrees extending itſelf into the earth, fixes there, and becomes capable at laſt of furniſhing the whole plant with a nutritious juice, whilſt the plume ſhooting in a contrary direction, in a very little time, flouriſhes above the ſurface of the earth.

Some authors have puzzled both themſelves and their readers, in endeavouring to explain the reaſons why the plume aſcends and the radicle deſcends, when a ſeed happens to be inverted in the earth, which muſt often be the caſe, or, in other words, when the plume, which ought to tend upwards, lies loweſt, or in any other direction but perpendicular, or pointing to the ſurface of the earth. It is certain, that ſeeds of all kinds, from the ſmalleſt to the largeſt, though thrown never ſo confuſedly into the earth, and lying there in all manner of directions, notwithſtanding theſe diſadvantages, redreſs themſelves when they come to ſpring, and riſe with the plume perpendicular to the ſurface of the earth; and this is one of thoſe amazing inſtances of the wiſdom of providence which never leaves the welfare of its productions to chance, but conducts the moſt inconſiderable parts of the creation with ſo much art and œconomy, that the more we are acquainted with it, the more we muſt admire it. It ſeems exceedingly eaſy to explain how this perpendicularity is effected, if we only conſider, that whilſt the radicle is fixing itſelf in the earth, the plume lies betwixt the two lobes, which lobes afterwards ſhoot out of the ground, together with the plume, and become the ſeminal leaves in all plants, except thoſe of the pulſe kind, which have ſomething analogous to them. We muſt alſo conſider, that fluids of all kinds contain a great quantity of air.

This part then of the operation of vegetation ſeems to be performed in the following manner: The lobes of the ſeeds are diſtended with the nutritious ſaponaceous juice of the earth, which juice contains a great quantity of air: this air being rarified by the heat of the ſun, is perpetually endeavouring to aſcend, and get above the ſurface of the earth, that it may perſpire through the pores of the lobes, and mix with the atmoſphere, as we find in fact it does, when theſe lobes become the ſeminal leaves, and get above the ſurface of the ground; but the pores of the lobes being ſtopped by the ſurrounding earth, the confined air acting perpetually on the inſide of the lobes, forces them to tend perpendicularly upwards, and conſequently the plume.

If it ſhould be ſaid that barley, when ſteeped in order to be made into malt, or that acorns, cheſnuts, or any other ſeeds, when laid in a moiſt place to ſprout, ſend the radical downwards and the plume upwards, notwithſtanding the pores of the lobes cannot, in this ſituation, be ſtopped by the ſurrounding earth: I anſwer, that even ſuppoſing the pores of the lobes not to be in the leaſt obſtructed, the ſame end will yet be anſwered, and the lobes, together with the plume, will be elevated perpendicularly, by the rarified air paſſing through the pores, and tending upwards.

But if we may ſuppoſe that the perſpiring air carries along with it a portion of the nutritious juices in the form of a vapour, imperceptible to the naked eye; as ſuch vapours always aſcend, they muſt neceſſarily cauſe the lobes, from whence they perſpire, to endeavour to aſcend alſo: becauſe they muſt have this tendency to riſe, before they quitted the veſſels in which they were contained, whilſt circulating through the lobes.

If this be granted, with regard to the elevation of the plume, it will be unneceſſary to mention the reaſons why the radicle ſhoots downwards, becauſe the radicle muſt of conſequence grow in an oppoſite direction to that of the plume.

Let us now purſue the progreſs of the nutritious juice, or ſap, and endeavour to inveſtigate the method taken by nature to conduct this embryo to a ſtate of perfection.

We have already obſerved that the radicle and plume receive their firſt nouriſhment from the lobes. Now, when the radical has fixed itſelf in the earth, and ſhot out fibres ſufficient for the ſupport of the plant, it is probable that the order of circulation is reverſed, and that the lobes, now becoming the ſeminal leaves, receive, in their turn, nouriſhment from the root, either by the ſame veſſels which originally conveyed nouriſhment to the radicle, or by others, which laſt ſeems moſt probable.

Theſe lobes now become ſeminal leaves, and above the ground are of great uſe to the plant; for if theſe are taken away, before the true leaves are expanded ſufficiently to perform their office, the plant immediately withers and dies.

It is a known maxim in hydraulics, that when a number of branches proceed from one large pipe or canal, if one of theſe branches is opened, a great quantity of the fluid circulating in theſe pipes will flow to every branch proceeding from the ſame pipe. Now theſe ſeminal leaves being once above ground, are in a perpetual ſtate of perſpiration, when the heat of the atmoſphere is ſufficient to rarify the juices of the plants enough for this purpoſe; or in an imbibing ſtate, when the heat is not ſufficient to make them perſpire, ſo that plants generally perſpire in the day-time, and imbibe the air and its contents in the night, at the leaves. When, therefore, theſe ſeminal leaves are in a ſtate of perſpiration, a greater quantity of the nutritious juices is derived not only to theſe ſeminal leaves, but alſo to the leading ſtem, or head of the plant, which is nouriſhed by veſſels proceeding from the ſame trunk with thoſe which nouriſh the ſeminal leaves. By means of this perſpiration, there is a perpetual ſupply of a nutritious fluid, drawn to the aſcending branch of the plant, for its ſupport and increaſe, which ceaſes, if the perſpiration of theſe ſeminal leaves is by any means ſtopped, or if the leaves are taken away before the true leaves are expanded, and grown large enough to perform their office, and by perſpiring in a due quantity, to draw a ſufficient nouriſhment to the ſtem, or head.

As ſoon then as the true leaves are able to perform their duty, there being no farther occaſion for the ſeminal leaves, they immediately wither and rot off; and this decay of the ſeminal leaves is probably cauſed by the air, which, entering the pores of the true leaves, is from thence communicated to the air veſſels of the trunk, which being by that means extended to the very root, the ſmall veſſels, which before conveyed the nutritious juice to the ſeminal leaves, are compreſſed and ſtopped up: the conſequence of which is, that the ſeminal leaves muſt periſh.

We have now conducted the plant above the ſurface of the earth; it remains that we examine into ſome circumſtances relating to its acretion or growth, and ſhew by what means it is brought to perfection.

What has been ſaid of the ſeminal leaves drawing nouriſhment, holds good of all the true leaves of a plant: for they all bring nouriſhment to themſelves and the adjacent parts, in the manner already obſerved; and as the rarified air and vapours in the leaves is conſtantly tending upwards, this ſtill preſerves the perpendicularity of the plant, and keeps the ſtem in an upright direction, unleſs it be forced to deviate from its perpendicularity, by ſome intervening accident.

As the body of the plant is daily more and more diſtended by the heat of the ſun in all its dimenſions, the fluids contained in it muſt be ſtill more diſtended: I ſay more, becauſe fluids having a leſs degree of coheſion than ſolids, their component parts more eaſily recede from each other, and therefore poſſeſs a greater ſpace; the conſequence of this is, that the containing veſſels of the plant muſt be preſſed in all directions by the contained fluid, and grow larger: mean time the air contained in the air-veſſels of the plant is alſo rarified and diſtended, ſo as to be conſtantly of the ſame denſity with the external air.

Thus the plant is conſtantly preſſed between the internal and external air; and as the veſſels of the plant are more expanded by the rarifactio of the internal air, the external air is alſo rarified, and conſequently preſſing leſs upon the plant, gives it more liberty to increaſe its dimenſions, and yield to the internal preſſure both of the ſap, and the contained air.

The reflecting reader will readily obſerve, that ſomething more than what we have already mentioned, is neceſſary towards vegetation: for otherwiſe the plant would be only diſtended, while its veſſels grew continually thinner, juſt in the ſame manner as a glaſs veſſel in the hands of the maker decreaſes in thickneſs, as the ſurface is enlarged by the air, which the operator forces into it. We are therefore to explain how plants increaſe in ſolidity, as well as dimenſions.

This part of the operation ſeems to be performed by cold in the following manner:

The heat of the ſun in the day-time having diſtended the ſap in the leaves, and made part of it perſpire through their pores, in order to draw nouriſhment to the adjacent parts, the coldneſs of the night immediately ſucceeding, when plants are not in a ſtate of perſpiration, this coldneſs contracts both the ſolids and fluids of the plant; for it is the nature of cold to contract all bodies whatever, and reduce them into a leſſer ſpace, and conſequently the particles of matter of which they are compoſed, approach nearer to each other; now the particles of matter are known to attract each other very ſtrongly at ſmall diſtances, and infinitely more, when their ſurfaces come into exact contact with each other: therefore that part of the fluid ſap which is neareſt the ſolid ſides of the veſſels, is, by the action of cold, forced into contact with the ſolids, where it remains by the force of the increaſed attraction: and thus the ſalts and earth diſſolved in the ſap, are applied to the veſſels, and reduced into a ſolid.

When once theſe particles of matter have acquired ſuch a degree of coheſion, the heat of the ſun, next day, approaching by gentle degrees, is not capable of diſſolving this union, but on the contrary increaſes it, and, by drying up the ſuperfluous moiſture, renders it more ſolid.

Thus we ſee how neceſſary a viciſſitude of heat and cold is to the vegetable world; for without it not a ſingle plant could grow upon the face of the earth. Was the atmoſphere to be always hot, vegetables would be in a conſtant ſtate of perſpiration, ſo long as the earth could afford a conſtant ſupply of juices; but then their dimenſions could never be enlarged. On the other hand, if it was always to be cold, plants would be deprived of the cauſe of their extenſion, and conſequently not grow at all. In either of theſe caſes the brute creation muſt want nouriſhment, and conſequently mankind.

Many have been the diſputes among naturaliſts, concerning the circulation of the ſap in vegetables; ſome will have it, that it riſes in veſſels analogous to the arteries in animals, and is again returned towards the root by other veſſels analogous to the veins; others again are of opinion that there is no ſuch retrogradation of the ſap, and both parties produce experiments to juſtify their different ſentiments. But perhaps there are no peculiar veſſels in plants, diſtended like the arteries and veins in animals, for the flux and reflux of the circulating juices; but that the ſap riſes, and in ſome meaſure again retires, by the ſame veſſels, as both the ſolid and the fluid parts of the plants are dilated by heat, and contracted by cold.

I ſhall now proceed to make ſome obſervations on the flowers of plants. The firſt thing then that occurs worthy of obſervation in flowers is, that they perform the ſame office to the generative organs, as the leaves do to the other parts of plants, that is, draw nouriſhment to them for their ſupport, by perſpiration; and that they do actually perſpire, and even in great quantities, is certain; becauſe they tranſmit to our organs certain effluvia, which affects us with the ſenſation of ſmelling. Theſe effluvia are a portion of the *ſpiritus rector*, or prevailing ſpirit, which is not alike in any two plants of different ſorts; but the ſame in every one of the ſame ſpecies, allowing for the accidents of ſoil and climate, and is inimitable by art. This *ſpiritus rector* reſides in the eſſential oils of vegetables, and is, probably, formed by the fineſt and moſt volatile parts of theſe eſſential oils, being mixed with the particles of light or heat, which are abſorbed by them, and reſide therein in a ſolid form. An annual plant, when it has once brought its ſeed to perfection, has anſwered the end of providence; and now the veſſels which convey nouriſhment to the leaves being furred up, incruſtated within, and rendered impervious, the leaves can no longer perſpire, and therefore wither and drop off; mean time the veſſels of the root and ſtem undergo the ſame fate with thoſe of the leaves; ſo that the whole plant dies, putrifies, and helps to ſupply the earth with a freſh pabulum or food for a ſucceeding generation.

There is a large claſs of plants which are called perennial, of which ſort are trees that live for ages; theſe, like annual plants, ſhed their leaves at the approach of winter, and for the ſame reaſon; but then the ſap-veſſels in the root and trunk continue pervious or hollow, ſo that, even in the winter, a kind of languid circulation is maintained. Theſe, at the approach of the ſpring, when the heat is increaſed, and the earth has recruited itſelf with a new ſtock of pabulum or food for their ſupport, put out leaves afreſh, perſpire and grow, till at laſt the ſap-veſſels in the root and trunk are obſtructed, and become impervious by degrees, ſo that when the circulation is intirely ſtopped in any part of it, the air diſſolves its texture, and it gradually decays and rots.

Sleep of PLANTS, is the nightly change of poſture in their leaves; for the leaves of certain plants aſſume at night a diſpoſition different from that of the day.

In order to diſcover the cauſes which produce this remarkable effect, it will be neceſſary to conſider previouſly the ſtructure of the leaves.

Between the two ſkins of the leaf, which are continuations of the outer rind of the ſtalk, run innumerable fibres of a large kind, with cluſters of more minute ones, in various forms, among them. The larger veſſels are of a woody ſubſtance, hollow, and ſmaller all the way from the baſe of the leaf: they are collected together in a compact manner in the footſtalk; and are originally ſent from the pith within the ſtem. Theſe fibres ſerve to ſupport the leaf in its proper poſition; and if it is affected either by an external or internal cauſe, will change that poſition.

Such is the ſtructure of the leaves of plants, which are expoſed to the air, moiſture and light; the only bodies that are in contact with the plants. One of theſe, therefore, or a combination of two or more of them, muſt produce this amazing phænomenon. The air, we know, is conſtantly in a fluctuating ſtate, occaſioned by the various degrees of heat and cold, and therefore ſeems to have ſome claim to our attention as a principal agent in producing this effect: but the experiments of Linnæus have ſufficiently demonſtrated, that neither heat nor the air is the principal cauſe of the wonderful appearance, for he found the plants in a ſtove, where there is no alteration in the degree of heat, and the ſame denſity of the air, exhibited the ſame phænomena. Nor can moiſture be the principal agent; for it has been found that the ſame appearances always recurred, whether the plant was watered or not; and whether this was done in a plentiful or a ſparing manner.

Three of the four natural agents are therefore excluded, and the fourth only remains to be conſidered; and this will be found ſufficient for the purpoſe; the change of poſition in the leaves of plants at different periods of the day and night being owing to this agent.

Light is ſubtile, active, and penetrating: by the ſmallneſs of its conſtituent parts, it is capable of entering bodies; and, by the violence of its motion, of producing great effects and changes in them. Theſe are not permanent, becauſe thoſe rays which occaſion them are, in that action, extinguiſhed and loſt. The change produced in the poſition of the leaves of plants by light, is the reſult of a motion occaſioned by its rays among their fibres: to excite this motion, the light muſt touch thoſe fibres; and where light touches it adheres, and becomes immediately extinguiſhed.

Theſe are the properties of light, and, according to theſe, the change we attribute to it, being once effected, muſt be continued ſo long as the light continues, and no longer.

The raiſing of the lobes in theſe leaves is owing to the power of thoſe rays which at any one inſtant fall upon them: theſe become extinguiſhed; but others immediately ſucceed to them, ſo long as the air in which the plant ſtands is enlightened: ſo that in full light the lobes continue in their moſt raiſed poſition, and droop in proportion as the light becomes leſs.

Thus have we diſcovered the cauſe of this amazing phænomenon; and ſhall only add, that a great number of experiments have ſufficiently demonſtrated, that this theory is founded on truth, and that light is the ſole agent in producing the ſleep of plants.

PLANTING is ſetting a tree or plant taken from its proper place, in a new hole or pit; throwing freſh earth over its root, and filling up the hole to the level of the ſurface of the ground.

The firſt thing in planting, is to prepare the ground, before the trees or plants are taken out of the earth, that they may remain out of the ground as ſhort a time as poſſible; and the next is to take up the trees, or plants, in order to their being tranſplanted.

In taking up the trees, carefully dig away the earth round the roots, ſo as to come at their ſeveral parts to cut them off; for if they are torn out of the ground without care, the roots will be broken and bruiſed to the great injury of the trees. When you have taken them up, the next thing is to prepare them for planting by pruning the roots and heads. And firſt, as to the roots, all the ſmall fibres are to be cut off, as near to the place from whence they are produced, as may be, except they are to be replanted immediately after they are taken up. Then prune off all the bruiſed or broken roots, all ſuch as are irregular, and croſs each other, and all downright roots, eſpecially in fruit-trees: ſhorten the larger roots in proportion to the age, the ſtrength, and nature of the tree; obſerving that the walnut, mulberry, and ſome other tender-rooted kinds ſhould not be pruned ſo cloſe as the more hardy ſorts of fruit and foreſt-trees: in young fruit-trees (ſuch as apples, pears, plums, peaches, &c.) that are one year old from the time of their budding or grafting, the roots may be left only about eight or nine inches long; but in older trees, they muſt be left of a much greater length: but this is only to be underſtood of the larger roots; for the ſmall ones muſt be chiefly cut quite out, or pruned very ſhort.

The next thing is the pruning of their heads, which muſt be differently performed in different trees; and the ſize of the trees muſt alſo be conſidered: thus, if they are deſigned for walls or eſpaliers, it is beſt to plant them with the greateſt part of their heads, which ſhould remain on till they begin to ſhoot in the ſpring, when they muſt be cut down to five or ſix eyes, at the ſame time taking care not to diſturb the roots. But if the trees are deſigned for ſtandards, you ſhould prune off all the ſmall branches cloſe to the place where they are produced, as alſo the irregular ones which croſs each other; and after having diſplaced theſe branches, you ſhould alſo cut off all ſuch parts of branches, as have by any accident been broken or wounded; but by no means cut off the main leading ſhoots, which are neceſſary to attract the ſap from the root, and thereby promote the growth of the tree.

Having thus prepared the trees for planting, you muſt now proceed to place them in the earth; but firſt, if the trees have been long out of the ground, ſo that the fibres of the roots are dried, place them eight or ten hours in water, before they are planted, with their heads erect, and the roots only immerſed therein, which will ſwell the dried veſſels of the roots, and prepare them to imbibe nouriſhment from the earth. In planting them great regard muſt be had to the nature of the ſoil; for if that be cold and moiſt, the trees ſhould be planted very ſhallow; and if it be a hard rock or gravel, it will be better to raiſe a hill of earth where each tree is to be planted, than to dig into the rock or gravel, and fill it up with earth, as is too often practiſed, by which means the trees are planted as it were in a tub, and have but little room to extend their roots.

The next thing to be obſerved, is to place the trees in the hole in ſuch a manner that the roots may be about the ſame depth in the ground, as before they were taken up: then break the earth fine with a ſpade, and ſcatter it into the hole, ſo that it may fall in between every root, that there may be no hollowneſs in the earth: then, having filled up the hole, gently tread down the earth with your feet, but do not make it too hard, which is a great fault, eſpecially if the ground be ſtrong or wet.

Having thus planted the trees, they ſhould be faſtened to ſtakes driven into the ground, to prevent their being diſplaced by the wind, and ſome mulch laid upon the ſurface of the ground about their roots: as to ſuch as are planted againſt walls, their roots ſhould be placed about five or ſix inches from the wall, to which their heads ſhould be nailed, to prevent their being blown up by the wind.

The ſeaſons for planting are various, according to the different ſorts of trees, or the ſoil in which they are planted: for the trees whoſe leaves fall off in winter, the beſt time is the beginning of October, provided the ſoil be dry; but if it be a very wet ſoil, it is better to defer it till the latter end of February, or the beginning of March; and for many kinds of evergreens, the beginning of April is by far the beſt ſeaſon; though they may be ſafely removed at Midſummer, provided they are not to be carried very far; but you ſhould always make choice of a cloudy wet ſeaſon.

Reverſe PLANTING, a method of planting, in which the natural poſition of the plant, or ſhoot, is inverted; the branches being ſet into the earth, and the root reared into the air.

Dr. Agricola mentions this monſtrous method of planting, which he found to ſucceed very well, in moſt or all ſorts of fruit-trees, timber-trees, &c. Bradley affirms, that he has ſeen a lime-tree in Holland growing with its firſt roots in the air, which had ſhot out branches in great plenty, at the ſame time that its firſt branches produced roots and fed the tree.

Mr. Fairchild, of Hoxton, has practiſed the ſame with us, and gives the following directions for performing it: Make choice of a young tree of one ſhoot, of alder, elm, willow, or any other tree that eaſily takes root by laying; bend the ſhoot gently down into the earth, and ſo let it remain till it has taken root. Then dig about the firſt root, and raiſe it gently out of the ground till the ſtem be nearly upright, and then ſtake it up. Then prune the roots, now erected in the air, from the bruiſes and wounds they received in being dug up, and anoint the pruned parts with a compoſition of two ounces of turpentine, four ounces of tallow, and four ounces of bees-wax, melted together, and applied pretty warm. Afterwards prune off all the buds or ſhoots that are upon the ſtem, and dreſs the wounds with the ſame compoſition, to prevent any collateral ſhootings, that might ſpoil the beauty of the ſtem.

PLOUGHMAN'S SPIKENARD. See the article *Ploughman's* SPIKENARD.

PLUM, a fleſhy veſſel, incloſing a hard, brittle ſhell, in which is one or two ſeeds.

PLUM-TREE, *Prunus*, a genus of plants, ranged by Linnæus among the *icoſandria monogynia*.

The varieties of plums cultivated in the gardens are very numerous; ſome reckon upwards of ſixty ſorts, all diſtinguiſhed by different names.

All the ſpecies of plums have within their fruit a hard ſtone, within which there is contained a ſoft and tender kernel: this kernel contains the ſeminal plant, from which would be produced another tree of the ſame kind, if it were ſet in the ground; and it is very natural to ſuppoſe, that the only uſe of the thick ſtone or huſk of this was to preſerve its tender ſubſtance from rotting too ſoon in the earth, and to give it a proper time for developing its parts, to preſerve its natural oilineſs during that time, and to furniſh from its own ſubſtance a proper nouriſhment to the growing plant; for obſervation ſhews, that it finally breaks into a very fine powder.

There has not been found any ſpecies of plum which had not its kernel contained in a ſtony coat of this kind, from whatever grafts they have been propagated; nor is there any art known by which the kernel of this ſort of fruit can, while growing, be deprived of its coat.

Mr. Marchand, however, in the year 1735, ſhewed, before the academy of ſciences at Paris, certain plums, whoſe kernels had no ſtone or ſhell round them; and found that they grew upon a tree which never had produced any others, and which had been known to produce ſuch for twenty years. The kernel in theſe was covered with a reddiſh ſkin, which was rough to the touch; and, within that, with another, which was thinner and white. The kernel had nothing particular in it, except that it carried on one ſide of its outer ſurface, and that always in the ſame place, a little ſtony prominence, more or leſs dented on its convex part: this is uſually a twelfth of an inch broad, and two thirds of an inch long, and has no other appearance but that of a diſtempered part of the kernel, only that all the kernels have it.

The thick wrinkled ſkin which ſurrounds the kernel, ſeems in this caſe to ſupply the place of the ſtone or hard ſhell; and in this alſo it reſembles it, that the pulp of the fruit parts eaſily and readily from it: and the hard oblong body, which is placed on one ſide of the kernel, is by no means proper for this purpoſe. *Mem. Acad. Sciences, Par.* 1735.

Culture of the PLUM-TREE.

All the ſorts of Plums are propagated by inoculating, or grafting them upon ſtocks of the Muſcle-plum, the white Pear-plum, the St. Julian, or the *bonum magnum*.

Inoculating is much properer than grafting for theſe trees, as they are apt to throw out a great deal of gum from the wound: and the trees ſhould be no more than one year's growth from the bud, when they are tranſplanted; for, if they are more, they ſeldom ſucceed well, being very ſubject to canker; and if they eſcape that, they uſually produce only two or three luxuriant branches. The whole management of planting and pruning them is the ſame with that of peaches. See PEACH.

If the walls againſt which they are planted are low, they ſhould be ſet eighteen feet aſunder; if they are higher, then fourteen or ſixteen.

Plums ſhould have a middling ſoil, for they ſeldom ſucceed well in too moiſt or too dry a one; and, when planted againſt walls, ſhould have an eaſt or a ſouth-eaſt proſpect. If they have one at full ſouth, they are apt to ſhrivel up, and become meally. Plums in general ſucceed very well, with proper care on eſpaliers; they will alſo bear very well as ſtandards, but the fruit will not be ſo well taſted. Plums do not only produce their fruit on the laſt year's wood, but alſo on ſpurs that come out of the wood at two or three years old. It is a common error to be too free with the knife in the winter pruning, cutting off the extremities of all the branches; the conſequence of which is, that there is an over quantity of young ſhoots produced, and the fruit is ſmall and poor.

Bay PLUM. See the article GUAYAVA.

Cocoa PLUM, *Chryſobalanus*, a genus of plants, of which there is only one ſpecies.

This plant is a native of America. It riſes with a ſhrubby ſtalk about eight or ten feet high. The branches are covered with a dark brown bark, ſpotted with white. The leaves are oval, ſtiff, and are indented at their ends, in form of a heart, and are placed alternately on the branches. The flowers are produced in looſe bunches: theſe are ſmall and white; the flowers are ſucceeded by oval Plums about the ſize of a damſon: ſome of theſe are blue, ſome red, and others yellow; they have a ſweet luſcious taſte.

Culture of the Cocoa PLUM.

It is propagated by ſeeds, which ſhould be obtained from America. They muſt be ſown in the ſpring in ſmall pots, and plunged into a hot-bed of tanners bark. In ſix weeks the plants will come up, and, if properly treated, will be fit to remove in a month's time, when they are to be carefully ſeparated, and each planted into a ſeparate ſmall pot, and then plunged into the hot-bed again, obſerving to ſhade them from the ſun till they have taken freſh root, after which they muſt have air every day in proportion to the warmth of the ſeaſon, and frequently watered during the ſummer.

In the autumn the plants muſt be removed into the bark-ſtove, and plunged into the tan-bed, obſerving to give them very little water in winter, and conſtantly managed in the ſame manner as other tender plants from the ſame countries.

Indian Date PLUM, a ſpecies of Dioſpyros. This plant is a native of Italy and Mauritania. It riſes to the height of thirty feet, and produces plenty of fruit every year, from the ſeeds of which many plants have been raiſed.

Culture of the Indian Date PLUM.

It is propagated by ſeeds, which may be ſown in the open ground, but the beſt method is to ſow them upon a moderate hot-bed, when the plants will come up much ſooner, and make a greater progreſs: but in this caſe the ſeeds ſhould be ſown in pots of earth, and plunged into the bed, for the plants will not bear tranſplanting till autumn.

When the plants have attained ſome height, they ſhould by degrees be inured to the open air. In June they may be wholly expoſed, and remain abroad till November, when it will be proper to take them into ſhelter, but they ſhould have as much free air as poſſible in mild weather.

In the ſpring following, before the plants begin to ſhoot, they ſhould be tranſplanted into a nurſery, in a warm ſituation, where they may be trained up for two years, and then removed to the places in which they are deſigned to remain.

Jamaica PLUM, *Spondias*, a genus of plants, of which there is only one ſpecies.

This tree is a native of the Weſt Indies, where it grows to the height of twelve or fourteen feet, but in England it ſeldom attains above half that height.

The leaves are very long, ſawed on their edges, and end in acute points. The flowers are of a pale yellow, ſome of which are ſucceeded by oval berries, incloſing a nut.

Culture of the Jamaica PLUM.

This tree is propagated by the nuts, which ſhould be obtained from the Leeward iſlands. Theſe ſhould be planted in pots as ſoon as they arrive, and plunged into a hot-bed of tan, where, if the bed is in a proper temperature of heat, the plants will appear in a month or five weeks. When they have obtained ſtrength enough to be removed, they ſhould be ſhaken out of the pots, and carefully parted, planting them in ſeparate ſmall pots, and plunging them into a freſh hot-bed of tan, ſhading them from the ſun till they have taken freſh root; after which they ſhould have free air, and be ſupplied with water in proportion to the warmth of the ſeaſon. They muſt always remain in the bark-ſtove, where they generally drop their leaves in the ſpring, and after remain naked two or three months.

POCCOON, or PUCCOON, *Sanguinaria*, a genus of plants, of which there is only one ſpecies.

This plant is a native of moſt of the northern parts of America, where the ground is in many places covered with its flowers, which bear ſome reſemblance to our Wood Anemone.

Culture of the POCCOON.

This plant is propagated by its roots, which may be taken up and parted every other year; the beſt time for doing this is in September, that the roots may have time to ſend out fibres before the hard froſts ſet in.

It requires a looſe ſoil, and a ſheltered ſituation, not too much expoſed to the ſun. The roots ſhould be marked, or it will be very difficult to find them after their leaves decay: for being of a dirty brown colour on the outſide, they are not eaſily diſtinguiſhed from the earth.

POCKWOOD. See the article GUAIACUM.

POD, a ſort of pericarpium, conſiſting of two valves, which open from the baſe to the point, and are ſeparated by a membranaceous partition, from whence the ſeeds hang by a kind of funiculus umbilicalis.

POLEY MOUNTAIN, *Polium*, a genus of plants, of which there are an infinite number of ſpecies, and many of them never admitted into gardens: all thoſe which are, require the following culture.

Culture of the POLEY MOUNTAIN.

Theſe plants are propagated by ſeeds, which muſt be procured from the countries where they naturally grow, for they ſeldom ripen their ſeeds here.

Theſe ſhould be ſown in the ſpring upon a bed of freſh light earth. When the plants come up, they muſt be carefully kept clean from weeds, and about the middle of July they ſhould be tranſplanted upon a warm border of dry ſoil, obſerving to ſhade them from the ſun, and to water them till they have taken new root, after which they will require no other culture but to be kept clean from weeds.

They may alſo be propagated by cuttings or ſlips, which ſhould be planted the beginning of April, upon a border expoſed to the eaſt; they muſt be ſhaded, and watered if the ſeaſon proves dry, till they have taken root, after which they will require no care, but to keep them clean from weeds till Michaelmas, when they ſhould be removed to the places in which they are deſigned to remain.

POLIANTHUS, or POLYANTHUS, a variety of the common Primroſe.

The root of this plant is compoſed of numerous thick fibres. The leaves riſe in a cluſter, and are large, oblong, broad, of a deep green, irregularly waved at the edges, and obtuſe at the end. In the centre of theſe riſes the ſtalk, which, when the plant is in ſtrength and vigour, is thick, firm, upright, and ten inches high, bearing at its top a large tuft of very beautiful flowers. Theſe are ſupported on their ſeparate pedicles, riſing together from the head of the main ſtalk, and they are naturally of a beautiful crimſon, with an eye of yellow. When weak or ill managed, they will produce a ſingle flower upon the ſtalk, in the manner of the common primroſe: but when encouraged by a right culture, they will throw out a vaſt number on each head, whoſe variations in colour will be extremely pleaſing, and the beauty in many of them equal that of the Auricula. The ſtalk will alſo, from great nouriſhment, ſometimes have films upon it, and the edges of the cups of the flowers will be ſwelled out by a leafy addition, ſtained with purple.

Culture of the POLIANTHUS.

The common method of propagating this plant is, by parting the roots: but the only way to obtain new varieties is from ſeeds, which the gardener ſhould take particular care to ſave from the fineſt flowers, by marking them when in full bloom. The properties required in a fine flower are, ſtrength of the ſtalk, breadth and number of the pips, and their high colour.

Such being marked, let thoſe which grow among them and are of a poorer kind, be taken up and planted in ſome other place, leſt the wind ſhould bring the duſt from their buttons into theſe finer flowers; from time to time let thoſe which remain be gently watered, and the earth ſtirred about them. If the bees are buſy among them, let them be driven away, for they will bring the duſt from one flower to another: it is the ſubſtance of which they make their wax, and as they come loaded from a poor flower, ſome of it may ſcatter into a good one, and hurt the ſeeds.

The two laſt weeks in May give the plants no water, and when the ſeeds are ripe, which will be about the middle of June, the ſeed-veſſel will open, then the gardener muſt watch them very cloſe, for they do not all ripen together: once in two days therefore he muſt examine them, and carefully cut off ſuch as are ripened, with a part of the main ſtalk, laying them upon a ſhelf in a dry airy room, firſt covering the ſhelf with paper, and raiſing a ledge upon the edge of it, to prevent any of them from falling off, or any of the ſeeds which drop from them; great care muſt be taken not to ſhake the ſeeds from out of the heads, but theſe laid at a diſtance from one another to harden.

The ſeeds thus ſaved in June will be ready for ſowing the latter end of December. Chuſe for this purpoſe a mild open day, and pour into a large flat box, made of rough boards, as much of the following compoſt as will fill it within two inches of the rim.

Let a quantity of good mould be taken from under the turf in a dry fertile paſture, and mix with it one third part of the earth from under a wood-pile: let theſe be well blended together, and thrown in a heap, ſix months before it is wanted, to mellow and receive the influences of the rains and air.

When the box is filled with this compoſt, as before directed, mix up with ſome that is left, one third part more of earth from the wood-pile, and one fourth dried cow-dung rubbed to pieces: blend this very well, and ſpread a covering of it half an inch thick over the earth in the box: then ſhake the ſeeds out of their capſules, and mix carefully with them as much wood aſhes and as much middling ſand waſhed clean, and ſcatter it over the ſurface of the earth in the box. With the remainder of the enriched compoſt, mix ſome more wood-pile earth, and having thus made it very light and fine, ſiſt ſome of it over the ſeeds, covering them about a quarter of an inch: give the earth no water, but ſet the box in ſome part of the garden, where it may have the full benefit of the ſun, and ſome ſhelter from very heavy rains. Thus let it ſtand during the coldeſt months, but when the ſpring comes on, let it be removed into a place where it is ſheltered and ſhaded from the ſun, except for the two or three firſt hours in the morning: in this manner the young plants will appear, and come ſlowly and gradually forward. When they are a little grown they muſt be gently watered at times, and about five months from the time of ſowing they will be fit to tranſplant.

Chuſe a ſhady border, and taking off the mould four inches deep, fill its place with ſome of the compoſt. In the evening of a moiſt day tranſplant them into this border: draw lines length-ways and a-croſs the border, at five inches diſtance; in the centre of each ſquare, made by theſe lines, open a little hole, and taking up the plants one by one, place them immediately as they are taken up, one in each hole, and give them a very gentle watering; from this time repeat the watering every evening for a week, and every other, or every third day afterwards, unleſs in rainy weather, for two months. Once in a week ſtir and break the mould between them with a ſmall trowel, and if a dead leaf any where appears nip it off.

The firſt week in September prepare a border in another part of the garden: let it be ſheltered from the ſouth ſun, but open to its rays in a morning. Clear the upper part of this, as of the other, to ſix inches depth, and fill it up with the remainder of the compoſt: draw lines length-ways and acroſs, at ſeven inches diſtance, and in the centre of each ſquare open a hole: into theſe remove the plants, taking them up with a ball of their own earth, and carefully watering them till they are rooted. In October ſtick up a few furze-buſhes about the border, to defend the plants from the ſeverity of the weather, and thus let them ſtand till ſpring. In March let the furzes be taken away, and the earth broken between the plants, and in April they will flower.

Their flowers will not be ſo ſtrong this as the ſucceeding years, and there will be a number of an inferior ſort, but there will alſo be many very fine ones: let a ſtick be ſet down by each of theſe as a mark, and let a quantity of the ſame compoſt be made up into a border, in a ſhady part of the garden, where the morning ſun comes: this muſt be a ſpade deep, for it is the place where they are to remain. When the flowering is over, let the ſtalks of theſe fine ones be cut off, that the roots may not be exhauſted by ripening ſeeds while they are ſo young, and about a week afterwards plant them out in the border prepared for them, at a foot diſtance. Water them gently till they are well rooted, and after this they will require no particular care, only the earth ſhould be broke between them at times with a trowel, thus they will flower in their full glory the ſucceeding ſpring, and many of the flowers will nearly equal Auriculas.

For their management afterwards, no more is required than this:

Every October let a freſh quantity of the compoſt already directed, be prepared, and the ſucceeding Auguſt let the border of Polianthus's be dug out, the roots carefully taken up and laid in the ſhade, and when the earth is carried away, let the freſh compoſt be put in its place: then part the roots, and plant the ſtrongeſt and fineſt in the border, at the ſame diſtance as at firſt, and the reſt in other parts of the garden: this will keep them in their full beauty, and provide an annual increaſe.

But the gardener ſhould always continue to raiſe ſeedlings, if he is deſirous to obtain new flowers, and for this purpoſe he muſt ſave the ſeeds from the fineſt of his flowers, and manage the young plants as already directed. By this means he will continue to improve his ſtock, and it is impoſſible to ſay to what excellence this kind may be raiſed by ſuch methods.

POLLEN, meal, or a fine duſt, contained and ſecreted within the antheræ, and deſtined for the impregnation of the germen.

POMEGRANATE, *Punica*, a genus of plants, ranged by Linnæus among the *icoſandria monogynia*; there is only one ſpecies of this genus, with the following varieties. The wild Pomegranate, with ſingle and double flowers. The ſmall flowering Pomegranate, with ſingle and double flowers. The Pomegranate, with ſtriped flowers; and the ſweet Pomegranate.

The Pomegranate-tree is a native of Italy, Spain, and Africa. It is naturally a ſtraggling ſhrub, breaking from a ſmall height into numerous branches, but it may be trained by proper management, into the form of a tree, or led over a great extent of wall. The trunk is covered with a rough brown bark, and the younger ſhoots are reddiſh. The leaves reſemble myrtle, but they are of a yellower green, and of a gloſſy ſurface: they have high ribs on the under part, and when bruiſed they ſmell ſtrong and diſagreeable. The flowers grow at the extremities of the branches, and on young ſhoots from other parts: they are large and very beautiful, deep, hollow, rumpled, and of a glowing ſcarlet. They are ſucceeded by a roundiſh fruit, having a hard ſhell, incloſing a pulp filled with angular ſeeds.

Culture of the POMEGRANATE.

It is eaſily propagated by laying down the branches in the ſpring, which in one year's time will take good root, and may then be tranſplanted where they are deſigned to remain.

The beſt ſeaſon for tranſplanting theſe trees is in ſpring, juſt before they begin to ſhoot. They ſhould have a ſtrong, rich ſoil, in which they flower much better, and produce more fruit than if planted on a dry, poor earth. They ſhould be planted againſt warm walls, in a good ſituation.

It has been obſerved that the flowers of this tree always proceed from the extremities of the branches which were produced the ſame year: this therefore directs that all weak branches of the former year ſhould be cut out, and that the ſtronger ſhould be ſhortened in proportion to their ſtrength, in order to obtain new ſhoots in every part of the tree.

Though the fruit of this tree ſeldom arrives to any perfection in this country, yet for the beauty of its ſcarlet-coloured flowers, together with the variety of its fruit, it is worthy a place in every collection, eſpecially as the culture it requires is not great.

POMPION, or PUMPKIN. See the article Pumpkin.

POPLAR-TREE, *Populus*, a genus of plants, ranged by Linnæus among the *dioecia octandria*, and of which he diſtinguiſhes the five following ſpecies. 1. Poplar-tree, with roundiſh leaves, angularly indented, and downy on their under-ſide; or the white Poplar. 2. Poplar-tree, with roundiſh leaves, which have angular indentures, and are ſmooth on both ſides, being the trembling Poplar; or the Aſpen-tree. 3. Poplar-tree, with triangular, acuminated, ſawed leaves; or the black Poplar. 4. Poplar-tree, with oblong, heart-ſhaped, crenated leaves; or the Carolina Poplar. 5. Poplar-tree, with heart-ſhaped, roundiſh leaves, the uppermoſt of which are hairy.

The firſt, ſecond, and third ſpecies of this tree are natives of different parts of Europe; and the fourth and fifth grow naturally in North America.

Culture of the Poplar.

All theſe ſpecies are eaſily propagated either by layers, cuttings, or ſuckers, of which the white kind always produces a great many from the root. The beſt ſeaſon for the tranſplanting theſe ſuckers is in October, when the leaves begin to decay; and they ſhould be placed in a nurſery for two or three years, at the end of which time they will have got ſtrength enough to be tranſplanted into the places where they are deſigned to remain.

When they are to be propagated by cuttings, it is beſt to do it in February, cutting off large truncheons of eight or ten feet long, which being thruſt down a foot deep in the ground, will take root very quick, and if the ſoil is moiſt, will grow to a conſiderable ſize in a few years.

The black Poplar is not ſo eaſily raiſed from theſe truncheons, but ſhould be planted in cuttings about a foot and a half long, planting them about a foot deep in the ground. This will grow on almoſt any ſoil or ſituation, but ſucceeds better on a moiſt one than any other.

The Poplars are the fitteſt of all trees for raiſing a ſhade in a little time, as they will grow ſometimes fourteen feet in height in one ſeaſon, and in four or five years will be large trees.

POPPY, *Papaver*, a genus of plants, ranged by Linnæus among the *polyandria monogynia*, and of which there are eight ſpecies. 1. Poppy, with globular, furrowed, and prickly capſules, and a leafy ſtalk, bearing many flowers. 2. Poppy, with nail-ſhaped, prickly heads, and a leafy ſtalk, bearing many flowers. 3. Poppy, with prickly heads, and a naked prickly ſtalk, bearing one flower, and double-winged leaves. 4. Poppy, with prickly heads, a naked, rough ſtalk, with one flower, and ſingle-winged, ſinuated leaves. 5. Poppy, with ſmooth, globular heads, a hairy ſtalk with many flowers, and wing-pointed, cut leaves; or the common red field Poppy. 6. Poppy, with ſmooth capſules and cups, and with cut leaves embracing the ſtalks. 7. Poppy, with oblong, ſmooth heads, a ſmooth ſtalk bearing many flowers, and cut, winged leaves. 8. Poppy, with ſmooth heads, rough, leafy ſtalks, having one flower, and ſawed, winged leaves.

Moſt of the Poppies are natives of England, and there are ſeveral varieties of moſt of the ſpecies, which have been obtained from ſeeds: among theſe the feathered Poppy is one of the moſt beautiful, and the culture of it will ſufficiently direct the gardener in that of all the reſt.

The root is large, long, white, and hung with fibres. The ſtalk is a yard or more in height, and the leaves are of a greyiſh or blueiſh green, oblong, and cut at the edges. The flowers are large and extremely elegant; they are compoſed of numerous long petals, which are cut and jagged deeply into many parts at the edges, and have ſomewhat of a feathered aſpect. Their colour is naturally a very elegant and bright ſcarlet, but they are varied in this reſpect without limitation: they are ſometimes blotched, and at others beautifully ſtreaked with purple and with white. The baſes of theſe petals are naturally white, and there is uſually more or leſs of white mixed with great elegance in the whole flower.

Culture of the Feathered Poppy.

This and every variety of the Poppy are obtained from ſeeds, every ſowing ſtill producing new kinds of flowers. The method to be obſerved is this:

When the plants are in flower, let the fineſt of them be marked for ſeed, obſerving to let only three heads ripen upon one plant: let them remain till they are very well hardened, and then taken off and laid on a papered ſhelf. When they have lain three weeks, at a diſtance from one another, and turned every day, let them be cut open, and the ſeed ſcattered looſe upon the ſhelf, and when it has lain thus ten days, it will be fit for ſowing.

The latter end of September let a bed of rich and fine garden mould be well dug and levelled, and upon this ſprinkle the ſeeds tolerably thick, ſifting over them a quarter of an inch of the ſame mould.

When the plants have a little ſtrength, thin them to four inches diſtance, taking care to pull up the weakeſt; water thoſe that are left at times, and keep them carefully weeded: and when they are ſo large as to touch each other, thin them again, leaving only as many of the ſtrongeſt plants as will ſtand at eight inches diſtance, and from this time weed and water them carefully.

When they are near flowering, let the gardener keep a watchful eye over them, and as ſoon as he perceives any ordinary flower, let it be pulled up. There will be found among the others a variety of beautiful kinds, and the ſeeds of the beſt of theſe which ripen them well, muſt be ſaved for the next ſowing.

This muſt be done every year, and the bed of them muſt be made every time upon a new piece of ground, for change of place is a very eſſential article, and which the gardener muſt never neglect: thus the plants will improve every year in elegance, and ſome of them will be very little inferior to carnations.

POTATOE, a ſpecies of Lycoperſicon, or Love-apple.

There are two ſorts of Potatoes. 1. The red-rooted, which bears purpliſh flowers. 2. The white-rooted, which bears white flowers.

Culture of the Potatoe.

Theſe plants may be propagated from ſeeds, but this way is uncertain, as they are rarely perfect, and are more readily propagated by their roots, which multiply very faſt if planted in a proper ſoil; therefore there is no neceſſity for practiſing any other method. The latter end of March is the ſeaſon for planting them; the common way is either to plant the ſmall roots entire, or to cut the large roots in pieces, leaving an eye or two to each piece; this method is very well in the contracted diſtance the gardeners commonly plant them, which is not above a foot aſunder; but if the roots are choſen large and fair, without cutting, and planted at the diſtance of a foot and a half in the rows, and two feet and a half row from row, they will have room to extend their fibres, which will produce a greater quantity of roots, and larger, on the ſame ſpace of ground, than in the common method: the depth they ſhould be planted is about ſeven inches, but it is a wrong practice to plant them with a dibber, as it leaves a cavity underneath the plant; therefore they are beſt planted after the plough in the furrows, or where the ſpade is uſed, in the trenches.

When the plants are come up, the earth ſhould be well ſtirred with a hoe, which will deſtroy the weeds, and let in the rains and dews more readily, which is of ſingular ſervice to the plants, and being repeated a ſecond time, will be all that is neceſſary, as the ſtalks will cover the ground and keep down the growth of weeds, whereby it will be rendered clean for any ſucceeding crop.

In autumn the haulm ſhould be mowed down, and the roots taken up ſoon after, and laid in a ſheltered place, which the froſt cannot eaſily penetrate, where they may be kept for uſe.

The ſoil in which Potatoes thrive beſt is a light ſandy loam, not too dry or too moiſt, which ſhould be well wrought before planting, and a good quantity of rotten dung intermixed with it, which will make them grow luxuriantly.

Spaniſh POTATOE, a ſpecies of Convolvulus, or Bindweed.

Theſe roots are annually imported from Spain and Portugal: they are ſometimes cultivated, by way of curioſity, in England, but ſeldom arrive to any perfection here; they require a great deal of room, for they ſend out many trailing ſtalks, which extend to a conſiderable diſtance every way, and at their joints put forth roots, which in warm countries grow to be large tubers, ſo that from a ſingle root planted an incredible number of others are produced.

Culture of the Spaniſh POTATOE.

It is propagated by the roots, which ſhould be planted on a hot bed in the ſpring, and if the plants are covered in bad weather with glaſſes, they will produce flowers, and ſome ſmall roots will proceed from the joint of the ſtalks, but if they are expoſed to the open air, they ſeldom grow to be of any ſize.

PRICKLY PEAR. See the article *Indian* FIG.

PRICKWOOD. See the article SPINDLE-TREE.

PRIMROSE, *Primula*, a genus of plants, ranged by Linnæus among the *pentandria monogynia*, and of which he makes the Auricula a ſpecies: but other authors conſider that as a diſtinct genus, and enumerate four ſpecies only of the Primroſe. 1. Primroſe, with rough, indented leaves, and foot-ſtalks bearing one flower. 2. Primroſe, with rough, indented leaves, and flowers growing in bunches, called Cowſlip: of this ſpecies the Polyanthus is a variety. 3. Primroſe, with ſmooth, wedge-ſhaped leaves, and bifid ſegments to the empalement, called Bird's-eyes. 4. Primroſe, with heart-ſhaped, crenated leaves, having foot-ſtalks, and flowers growing in bunches on very long foot-ſtalks.

There are ſeveral varieties of the firſt and ſecond ſpecies now cultivated in our gardens: the method of doing which, has been treated of at large under the article POLIANTHUS, to which article we refer the reader.

Tree PRIMROSE, *Oenothera*, a genus of plants, ranged by Linnæus among the *octandria monogynia*, and of which there are three ſpecies. 1. Tree Primroſe, with oval, ſpear-ſhaped, plain leaves. 2. Tree Primroſe, with ſpear-ſhaped, waved leaves. 3. Tree Primroſe, with ſpear-ſhaped leaves, and capſules which have acute angles.

The firſt and third ſpecies are natives of Virginia, and the ſecond of Buenos Ayres.

Culture of the Tree PRIMROSE.

The firſt and third ſpecies are propagated by ſeeds, which ſhould be ſown in autumn. When the plants come up, they ſhould be thinned, and cleared from weeds, which is all the care they require till autumn, when they may be tranſplanted to the places where they are deſigned to flower. They will thrive in almoſt any ſoil or ſituation.

The third ſort may alſo be propagated by parting of the roots, which ſhould be done in ſpring.

The ſecond ſpecies is propagated by ſeeds, and if they are permitted to ſcatter, the plants will come up the following ſpring: the only culture they require, is to be kept clean from weeds, and thinned where they grow too cloſe.

PRIVET, *Liguſtrum*, a genus of plants, ranged by Linnæus among the *diandria monogynia*, and of which he diſtinguiſhes only one ſpecies, but according to other authors there are two, and Mr. Miller enumerates three, making the Carolina blue-berried Bay, one.

The other two ſpecies are, 1. The common Privet. 2. The Italian ever-green Privet.

The firſt ſpecies grows naturally in the mountainous parts of Europe, and in the hedges in moſt parts of England.

The ſecond ſpecies is a native of Italy. Both theſe ſorts are cultivated in our gardens, but the Italian Privet is to be preferred to the common, as it continues green all the year.

Culture of the PRIVET.

The common and Italian Privet are eaſily propagated by laying down the tender ſhoots in autumn, which in a year's time will be fit for tranſplanting to the places where they are deſigned to remain.

They may alſo be propagated by cuttings, which ſhould be planted in autumn on a ſhady border, and in a loamy ſoil, where they will take root very freely, and may then be treated in the ſame manner as the layers.

But the ſtrongeſt and beſt plants are thoſe raiſed from ſeeds, though this method is ſeldom practiſed, being very tedious, for the ſeeds moſt commonly lie a year in the ground before they vegetate: for which reaſon the berries ſhould be put in pots with ſand between them, and the pots buried in the ground, where they muſt remain a year, and then be taken up, and the berries ſown on a border expoſed to the eaſt. The plants will appear the following ſpring, and as ſoon as they have got ſome ſtrength will make a rapid progreſs.

The blue-berried Bay is propagated by the berries, which are brought to England from Carolina and other parts of North America. Theſe ſhould be ſown in pots, and plunged into a moderate hot-bed: when the plants come up they muſt have plenty of air in warm weather, and ſcreened from the ſun in the heat of the day. The following ſpring they ſhould each be tranſplanted into a ſeparate ſmall pot, and plunged into a moderate hot-bed till they have taken new root, after which they ſhould be gradually inured to the open air. For two or three years, while the plants are young, they ſhould be ſheltered in the winter, and then they may be planted in the full ground.

It may alſo be propagated by layers, and the cuttings, if they are planted in the ſpring, and carefully managed, will take root.

Ever-green PRIVET, *Alaternus*, according to Linnæus a ſpecies of Rhamnus, but by other authors conſidered as a diſtinct genus.

This plant is a native of Europe: there are ſeveral varieties of it, among which are the blotched Phillyrea, and the ſilver and gold-ſtriped Alaternus's.

Culture of the Ever-green PRIVET.

This plant and all the varieties of it are eaſily propagated by laying down the branches in autumn. The autumn following they may be cut off from the old root, and planted in the nurſery, or in the places where they are deſigned to remain.

When they are planted in a nurſery, the longeſt time they muſt remain there is three years, after which they cannot be removed ſafely without injuring the roots, which ſpread to a great diſtance on every ſide.

Mock PRIVET, a genus of plants, of which ſome authors have diſtinguiſhed ſeveral ſpecies, but Linnæus, who has ranged it among the *diandria monogynia*, conſiders only two. 1. Mock Privet, with ſpear-ſhaped leaves almoſt entire. 2. Mock Privet, with oval, heart-ſhaped, ſawed leaves.

Both theſe ſpecies are natives of the ſouthern parts of Europe, and riſe to the height of eighteen or twenty feet.

Culture of the Mock PRIVET.

They are propagated either by ſeeds or layers: if by layers, the proper time for doing it is in autumn. Let them be kept clean from weeds, and in the autumn following taken off from the old plant, and placed in the nurſery, where they may be trained three or four years in the manner they are intended to grow; after which, about the end of September, they may be tranſplanted to the places where they are deſigned to remain, taking care to preſerve a large ball of earth to the root of each plant: ſome mulch muſt be laid upon the ſurface of the ground to prevent its drying, and let the plants be ſupported by ſtakes till they are well rooted in the earth.

If the plants are propagated by ſeeds, they ſhould be ſown in autumn, ſoon after they are ripe, in pots or boxes filled with light loamy earth, and placed under a garden-frame, where they ſhould be protected from hard froſts, but be always expoſed to the open air in mild weather.

In autumn, after the plants are come up, they ſhould be carefully taken out of the pots or boxes, and planted in a nurſery-bed, covering the ſurface with old tan, and afterwards they may be treated as directed for the layers.

PROPAGO, the ſeed of a moſs, having neither tunic nor cotyledon, and conſiſting only of the Plumula of a naked corculum, where the roſtellum is inſerted into the calyx of the plant. See Seed.

PRUNING, in gardening and agriculture, is the lopping off the ſuperfluous branches of trees, in order to make them bear better fruit, grow higher, or appear more regular.

Pruning, though an operation of very general uſe, is nevertheleſs rightly underſtood by few; nor is it to be learned by rote, but requires a ſtrict obſervation of the different manners of growth of the ſeveral ſorts of fruit-trees; the proper method of doing which cannot be known without carefully obſerving how each kind is naturally diſpoſed to produce its fruit: for ſome do this on the ſame year's wood, as vines; others, for the moſt part, upon the former year's wood, as peaches, nectarines, &c. and others upon ſpurs which are produced upon wood of three, four, &c. to fifteen or twenty years old, as pears, plumbs, cherries, &c. therefore, in order to the right management of fruit-trees, proviſion ſhould always be made to have a ſufficient quantity of bearing wood in every part of the trees, and at the ſame time there ſhould not be a ſuperfluity of uſeleſs branches which would exhauſt the ſtrength of the trees, and cauſe them to decay in a few years.

The reaſons for Pruning of fruit-trees; are, 1. To preſerve them longer in a vigorous bearing ſtate; 2. To render them more beautiful; and, 3. To cauſe the fruit to be larger and better taſted.

The general inſtructions for Pruning are as follow: the greateſt care ought to be taken of fruit-trees in the ſpring, when they are in vigorous growth, which is the only proper ſeaſon for procuring a quantity of good wood in the different parts of the tree, and for diſplacing all uſeleſs branches as ſoon as they are produced, in order that the vigour of the tree may be entirely diſtributed to ſuch branches only as are deſigned to remain. For this reaſon trees ought not to be neglected in April and May, when their ſhoots are produced: however thoſe branches which are intended for bearing the ſucceeding year ſhould not be ſhortened during the time of their growth, becauſe this would cauſe them to produce two lateral ſhoots from the eyes below the place where they were ſtopped, which would draw much of the ſtrength from the buds of the firſt ſhoot: and if theſe two lateral ſhoots are not entirely cut away at the winter-pruning, they will prove injurious to the tree. This is to be chiefly underſtood of ſtone fruit and grapes; but pears and apples, being much harder, ſuffer not ſo much, though it is a great diſadvantage to thoſe alſo to be thus managed. It muſt likewiſe be remarked, that peaches, nectarines, apricots, cherries, and plumbs, are always in the greateſt vigour when they are leaſt maimed by the knife, for where large branches are taken off, they are ſubject to gum and decay; it is therefore the moſt prudent method to rub off all uſeleſs buds when they are firſt produced, and to pinch others where new ſhoots are wanted to ſupply the vacancies of the wall; by which management they may be ſo ordered as to want but little of the knife in winter pruning. The management of pears and apples is much the ſame with theſe trees in ſummer; but in winter they muſt be very differently pruned: for as peaches and nectarines, for the moſt part, produce their fruit upon the former year's wood, and muſt therefore have their branches ſhortened according to their ſtrength, in order to produce new ſhoots for the ſucceeding year; ſo on the contrary, pears, apples, plumbs, and cherries, producing their fruit upon ſpurs, which come out of the wood of five, ſix and ſeven years old, ſhould not be ſhortened, becauſe thereby thoſe buds which were naturally diſpoſed to form theſe ſpurs, would produce wood branches; by which means the trees would be filled with wood, but would never produce much fruit. The branches of ſtandard trees ſhould never be ſhortened unleſs where they are very luxuriant, and by growing irregularly on one ſide of the tree, attract the greateſt part of the ſap, by which means the other parts are either unfurniſhed with branches, or are rendered very weak; in which caſe the branch ſhould be ſhortened down as low as is neceſſary, in order to obtain more branches to fill up the hollow of the tree: but this is only to be underſtood of pears and apples, which will produce ſhoots from wood of three, four, or more years old; whereas moſt ſorts of ſtone-fruit will gum and decay after ſuch amputations: whenever this happens to ſtone-fruit it ſhould be remedied by ſtopping or pinching thoſe ſhoots in the ſpring, before they have obtained too much vigour, which will cauſe them to puſh out ſide branches; but this muſt be done with caution. You muſt alſo cut out all dead or decaying branches, which cauſe their heads to look ragged and alſo attract noxious particles, from the air in doing of this you ſhould cut them cloſe down to the place where they were produced, otherwiſe that part of the branch which is left will alſo decay, and prove equally hurtful to the reſt of the tree; for it ſeldom happens when a branch begins to decay, that it does not die quite down to the place where it was produced, and if permitted to remain long uncut often infects ſome of the other parts of the tree. If the branches cut off are large, it will be very proper, after having ſmoothed the cut part exactly even with a knife, chiſſel, or hatchet, to put on a plaſter of grafting clay, which will prevent the wet from ſoaking into the tree at the wounded part. All ſuch branches as run a-croſs each other, and occaſion a confuſion in the head of the tree ſhould be cut off; and as there are frequently young vigorous ſhoots on old trees which riſe from the old branches near the trunk, and grow upright into the head, theſe ſhould be carefully cut out every year, leſt, by being permitted to grow, they fill the tree too full of wood. For Pruning the roots and branches of trees in tranſplanting them, ſee the article Planting.

As to the Pruning of foreſt-trees, if they be large it is beſt not to prune them at all; yet if there be an abſolute neceſſity, avoid taking off large boughs as much as poſſible. And, 1. If the bough be ſmall, cut it ſmooth, cloſe, and ſloping. 2. If the branch be large and the tree old, cut it off at three or four feet from the ſtem. 3. If the tree grow crooked, cut it off at the crook ſloping upward, and nurſe up one of the moſt promiſing ſhoots for a new ſtem. 4. If the tree grow top-heavy, its head muſt be lightened, and that by thinning the boughs that grow out of the main branches. But if you would have them ſpring, rub off the buds, and ſhroud up the ſide ſhoots. 5. If the ſide bough ſtill breaks out, and the top be able to ſuſtain itſelf, give the boughs that put forth in ſpring a Pruning after Midſummer, cutting them cloſe.

PSORALEA, a genus of plants, of which there are ten ſpecies. 1. Pſoralea, with winged leaves, and flowers proceeding from the ſides of the ſtalks. 2. Pſoralea, with ſingle, oval leaves. 3. Pſoralea, with trifoliate, oval leaves, a hairy, ſhrubby ſtalk, and flowers terminating the branches. 4. Pſoralea, with ſilvery winged leaves, trailing ſtalks, and flowers proceeding from the ſides of the ſtalks. 5. Pſoralea, with winged leaves, a climbing ſtalk, and flowers ſitting cloſe at the wings of the ſtalk. 6. Pſoralea, with trifoliate leaves, a very branching, ſhrubby ſtalk, and flowers growing in heads. 7. Pſoralea, with winged leaves, and flowers growing in ſpikes. 8. Pſoralea, with winged leaves, having hairy, round lobes, flowers growing in heads from the wings of the leaves, and at the ends of the branches, and a ſhrubby ſtalk. 9. Pſoralea, with trifoliate leaves, having oval lobes, and flowers growing in heads on very long foot-ſtalks. 10. Pſoralea, with trifoliate leaves, having oval, ſpear-ſhaped lobes, and flowers growing in heads upon long foot-ſtalks.

The firſt ſpecies is a native of the Cape of Good Hope. The ſecond of India. The third, ſeventh, and eighth ſpecies grow naturally at La Vera Cruz. The fourth is a native of Malabar. The fifth and ſixth ſorts grow naturally at Campeachy. The ninth in the ſouth of France and Italy, and the tenth is a native of Jamaica and Sicily.

Culture of the PSORALEA.

The firſt ſpecies is propagated by ſeeds, which ſhould be ſown upon a moderate hot-bed, and when the plants come up, they muſt have a large ſhare of air admitted to them. When they are fit to remove they ſhould be planted in ſeparate ſmall pots, filled with light earth, and plunged again into the bed, ſhading them from the ſun till they have taken new root, then they ſhould be gradually inured to the open air, into which they ſhould be removed towards the end of May, and kept abroad till October, at which time they muſt be placed in the green-houſe, and treated like other plants from the ſame country.

The ſecond, fourth, and ſeventh ſpecies are propagated by ſeeds, which muſt be ſown upon a hot-bed in the ſpring, and when the plants are fit to remove, they ſhould be each planted into ſeparate ſmall pots, filled with light earth, and plunged into a moderate hot-bed, ſhading them from the ſun till they have taken new root, after which they muſt have free air admitted to them in warm weather.

When the plants have filled the pots with their roots, they ſhould be removed into larger, and the beginning of July they may be placed in an airy glaſs-caſe, where they may be defended from cold, but have free air in warm weather.

The third, fifth, ſixth, and eighth ſpecies are propagated by ſeeds, ſown upon a hot-bed, and the plants muſt be treated in the ſame manner as the ſecond ſort: but they muſt be removed into the ſtove in autumn, and kept in a moderate warmth all the winter, and in ſummer they muſt have a large ſhare of air, but ſhould conſtantly remain in the ſtove.

The ninth and tenth ſpecies are propagated by ſeeds, which ſhould be ſown on a bed of light earth in April, and in May the plants will come up, when they ſhould be kept clean from weeds, and as ſoon as they are fit to remove, they ſhould be tranſplanted.

The plants of the ninth ſort will live through the winter in the open air, if they are planted in a warm, dry border: but thoſe of the tenth ſpecies muſt be planted in pots and placed under a common frame in winter, where they may be ſcreened from ſevere froſt.

PTARMICA, a ſpecies of Achillea. See the article ACHILLEA.

PTARMICA, a ſpecies of Eternal Flower. See *Eternal* FLOWER.

PUMPKIN, or POMPION, a ſpecies of the Gourd. See the article GOURD.

PURSLAIN, *Portulaca*, a genus of plants, ranged by Linnæus among the *decandria monogynia*, and of which there are three ſpecies. 1. Purſlain, with wedge-ſhaped leaves, and flowers growing cloſe to the ſtalks. 2. Purſlain, with oval, gibbous leaves, foot-ſtalks having many flowers, and a ſhrubby ſtalk. 3. Purſlain, with awl-ſhaped leaves placed alternately, hairy joints, and flowers ſitting cloſe to the ſtalks.

The firſt ſpecies is the common Purſlain, a plant ſo well known as to need no deſcription. It is a native of moſt of the hot parts of the globe. There are three varieties of it: one with deep green leaves, one with yellow leaves, commonly called golden Purſlain, and the third with ſmall ſucculent leaves, called wild Purſlain.

The ſecond ſpecies is a native of the Cape of Good Hope. The root is white and fibrous. The ſtalk is round, upright, thick, but of a tender ſubſtance: at the bottom it is ſtrongly tinged with red, but upwards its colour is a bright ſilvery green. The leaves ſtand thick upon it from the bottom to the top: they have no foot-ſtalks, but adhere by a narrow baſe, from which they grow broader to the extremity. Their colour is a bright freſh green, and they have a thick, juicy ſubſtance: at the end they are rounded and broad, and frequently they have in that part a heart-like dent; the middle rib, more particularly in the lower leaves, is large and conſpicuous, and its colour is uſually reddiſh, eſpecially towards the baſe. The flowers cover the top of the plant in a large looſe head. The main ſtalk divides in this part into a vaſt number of branches, and on each there are many flowers: they ſpread out wide every way, and there are all down them flowers on ſlender reddiſh foot-ſtalks, at diſtances. The flowers themſelves are of a ſnowy white, ſometimes tinged with a bluſh of fleſh-colour.

The third ſpecies is a native of South-America. The root is compoſed of many long white fibres. The ſtalks are numerous, weak, gloſſy, lightly hairy, and thrown about in various directions; ſome upright, ſome oblique, and others lying on the ground. Their colour is naturally a pale green, but they are often ſtained with purple. The leaves are numerous, and placed alternately: they are long, narrow, ſharp-pointed, of a pale but freſh and pleaſing green, and gloſſy as the ſtalks. The flowers terminate the ſtalks, and often riſe alſo from the boſoms of the leaves, ſometimes ſingly, ſometimes two or three together. They are not large, but very conſpicuous from their poſition and colour, they ſtick cloſe by the baſes to the ſtalk: the colour of the petals is a delicate crimſon, the buttons are yellow, and the heads of the ſtyle purple. Round about thoſe which terminate the ſtalks, there ſtand eight or more leaves, like the others in form, but diſpoſed as the rays of a ſtar; and about the baſes of theſe, and in the angles made by the others with the ſtalk, there is uſually a light cottony matter.

Culture of the PURSLAIN.

The firſt ſpecies is propagated by ſeeds, which ſhould be ſown upon beds of light earth, during any of the ſummer months. It requires no other culture than to be kept clear from weeds, and in dry weather to be watered two or three times a week.

The ſecond ſpecies is propagated by ſeeds, which ſhould be ſown on a hot-bed, and when the plants have acquired ſome ſtrength, they muſt be tranſplanted into a ſecond, and thence into a third hot-bed; after which as many as are intended to be preſerved, muſt be tranſplanted into ſeparate pots of rich garden-mould. Let them be frequently watered, and kept under a hot-bed frame, till they are well ſtrengthened in the new earth: then let them be ſet out with the other green-houſe plants, where they may remain till autumn, at which time they muſt be removed into the green-houſe, where they will flower in perfection, and their leaves will give a fine variety.

The ſeeds of the third ſpecies muſt be ſown in February in a pot of rich garden-mould, and plunged to the rim in a bark-bed. When the plants riſe, they muſt be thinned, and afterwards two or three of the fineſt may be planted out into ſeparate pots, which muſt be removed into the ſtove, and there treated in common with the other plants, ſuffering them to grow their own way; in which ſome of the branches will fall down, and cover the whole pots.

Sea PURSLAIN-TREE, a ſpecies of Orach. See the article ORACH.

Q.

QUAMOCLIT. See the article IPOMOEA.

QUEEN *of the Meadows*, a ſpecies of Spiræa. See the article SPIRÆA.

QUEEN'S *Gilli-Flower*. See the article ROCKET.

QUICK, or QUICKSET HEDGE, all live hedges, of whatever ſort of plants they are compoſed, to diſtinguiſh them from dead hedges: but, in a more ſtrict ſenſe of the word, it is reſtrained to thoſe planted with the hawthorn, or *meſpylus ſylveſtris*; under which name theſe young plants, or ſets, are ſold by the nurſery-gardeners who raiſe them for ſale.

QUICKBEAM, or QUICKEN, a ſpecies of the Service-Tree. See the article SERVICE-TREE.

QUINCE-TREE, *Cydonia*, according to Linnæus, a ſpecies of the Pyrus or Pear-tree, but conſidered by other authors as a diſtinct genus, of which there are three ſorts: 1. The Pear-Quince. 2. The Apple-Quince. 3. The Portugal Quince.

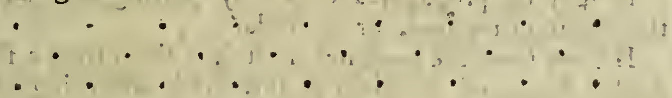
Culture of the QUINCE-TREE.

The ſeveral ſorts of this tree are eaſily propagated, either by layers, ſuckers, or cuttings, which muſt be planted in a moiſt ſoil. Thoſe raiſed from ſuckers are ſeldom ſo well rooted as the others, and are ſubject to produce ſuckers again, in a greater abundance, which is not to be wiſhed in fruit-bearing trees.

The cuttings ſhould be planted early in the autumn, and, in dry weather, muſt be often watered, to aſſiſt them in rooting: the ſecond year they ſhould be removed into the nurſery, and ſet in rows, at three feet diſtance, and one foot aſunder in each row. In two or three years more, they will be fit to tranſplant where they are to ſtand, which ſhould always be near a ditch or river, or in ſome moiſt ſoil; where they will produce twice the quantity of fruit that they will in a dry one, and it will alſo be much larger: but thoſe in a drier ſoil are better taſted, and are earlier ripe.

Dwarf QUINCE, a ſpecies of Medlar. See the article MEDLAR.

QUINCUNX ORDER, in gardening, a plantation of trees, diſpoſed originally in a ſquare; and conſiſting of five trees, one at each corner, and a fifth in the middle: or a Quincunx is the figure of a plantation of trees diſpoſed in ſeveral rows, both length and breadth-ways, in ſuch a manner, that the firſt tree in the ſecond row commences in the centre of the ſquare formed by the two firſt trees in the firſt row, and the two firſt in the third, reſembling the figure of the five at cards. This diſpoſition of trees was formerly much more regarded than at preſent; but is ſtill much uſed in France, for planting trees to form a grove, and is expreſſed in the following form:



* * *

R.

RACEMUS, a ſtalk divided or branched into ſeveral footſtalks, ſuſtaining the flowers; or fruits ſet together, as the bunches of grapes, currans, &c.

RADIATED FLOWERS, are ſuch as have ſeveral ſemi-floſcules ſet round a diſk, in form of a radiant ſtar; thoſe which have no ſuch rays are called Diſcous Flowers.

RADICLE, that part of the ſeeds of all plants which, upon vegetating, becomes its root.

RADISH, *Raphanus*, a genus of plants ranged by Linnæus among the *tetradynamia ſiliquoſa*, and of which there are three ſpecies; but as there is only one of them cultivated in our gardens, namely, the garden radiſh, it will be needleſs to deſcribe them.

There are ſeveral varieties of the root of the common garden Radiſh, *viz.* The ſmall topped Radiſh, the deep red Radiſh, the ſtriped Radiſh, &c. all of which ariſe from culture. The ſmall topped is the kind, the ſeed of which is moſt ſaved, and which is moſt valued about London, becauſe it does not take up much room.

Culture of the RADISH.

Radiſhes are ſown at various ſeaſons, but the earlieſt is generally at the latter end of October; if they are not deſtroyed by froſt; they become fit to eat in March. Theſe are commonly ſown about walls, pales or hedges, where they may have ſome defence againſt the cold. The ſecond ſowing is commonly about Chriſtmas, if the weather is mild enough to let the ground be worked. Theſe are alſo to be ſown under ſhelter, and, if they are not deſtroyed, will be fit to eat in April; and to have a conſtant ſupply, there ſhould be a new ſowing every fortnight, from the middle of January to the beginning of April. The latter crops ſhould be ſown in a moiſt ſoil, and an open ſituation.

Horſe RADISH. See the article HORSE-RADISH.

RAGGED ROBIN, a ſpecies of Lychnis. See LYCHNIS.

RAGWORT, *Othonna*. See the article OTHONNA.

RAMPION, *Rapunculus*, a genus of plants of which there are ſix ſpecies: 1. Rampion with the lower leaves heart-ſhaped, and an oblong ſpike of flowers. 2. Rampion with indented leaves, thoſe at the bottom heart-ſhaped, and flowers growing in bunches. 3. Rampion with linear, entire leaves. 4. Rampion with ſpear-ſhaped leaves. 5. Rampion with ſawed leaves, the lower ones of which are heart-ſhaped. 6. Rampion with obtuſe leaves.

Theſe are all hardy plants, and natives of different parts of Europe.

Culture of the RAMPION.

All the ſpecies are propagated by ſeeds, which ſhould be ſown in autumn, for if they are kept out of the ground till the ſpring, they frequently fail. They ſhould be ſown on a bed of freſh undunged earth, where they are deſigned to remain; ſmall drills ſhould be made croſs the bed at eighteen inches diſtance, wherein the ſeeds ſhould be ſown; and then covered over very lightly.

The following ſpring the plants will come up, when they muſt be frequently weeded and thinned, ſo as to leave them ſix or ſeven inches apart in the rows, which is all the culture they require.

RAMPIONS, or CARDINAL FLOWER. See the article CARDINAL FLOWER.

RAMPION, a ſpecies of Campanula. See the article CAMPANULA.

RANDIA, a genus of plants of which there is only one ſpecies.

This plant is a native of La Vera Cruz. It riſes with a ſhrubby ſtalk twelve feet high. The branches grow in pairs from the ſides of the ſtalks, each pair croſſing the other. The leaves ſtand upon ſhort footſtalks, they are round, a little indented at the top, and of a thick conſiſtence. The flowers are placed on the ſides of the branches, they are ſmall, white, tubulous, and ſlightly divided at the brim into five ſegments. Theſe are ſucceeded by oval berries, about the ſize of a marble.

Culture of the RANDIA.

It is propagated by ſeeds, which ſhould be ſown in pots early in the ſpring, and plunged into a hot-bed of tanners bark.

When the plants come up, they muſt have freſh air admitted to them always when the weather is warm. In about a month they will be fit to tranſplant, when they ſhould be carefully ſhaken out of the pots, and each planted into a ſeparate ſmall pot, and then plunged into the hot-bed again, where they muſt be ſhaded from the ſun till they have taken freſh root, after which they muſt have air and water in proportion to the warmth of the ſeaſon.

The plants may remain in the hot-bed till Michaelmas, at which time they ſhould be removed into the ſtove, where they muſt be kept the two firſt years in a moderate temperature of heat, always obſerving to waſh their leaves whenever they contract filth. The third ſummer they may be expoſed to the open air, in a warm ſituation for two or three months, but in winter they muſt be again removed into the ſtove, where their leaves continue green all the year, and make a moſt agreeable variety.

RANUNCULUS, *Crowfoot*, a genus of plants ranged by Linnæus among the *polyandria polygynia*, and of which there are no leſs than thirty-ſeven ſpecies, many of them common weeds in this country, and moſt of the others growing wild in ſeveral parts of Europe. From the ſpecies of this plant cultivated in our gardens ſeveral beautiful varieties have been raiſed, which it would be needleſs to particularize: we ſhall therefore confine ourſelves to four, *viz:*

Double White Ranunculus.
Proliferous Mountain Ranunculus.
Golden Proliferous Ranunculus.
Oriental Meadow Ranunculus.

Double White RANUNCULUS. The root of this plant is compoſed of numerous thick ſpreading fibres, which riſe, as it were immediately from the baſe of the ſtalk, without any head. The firſt leaves are ſupported on long foot-ſtalks, and are of a deep but elegant green: they are divided to the baſe into five parts, and theſe are oblong, broadeſt toward the middle, ſharp-pointed, deeply jagged, and notched at the edges. The ſtalk is round, thick, and branched, two feet and a half high, of a pale, whitiſh green, and often ſtained with brown. The leaves on this are like thoſe from the root, only ſmaller, and they ſtand irregularly. The flowers terminate the branches, and are very numerous and elegant: they are compoſed of ſeveral ſmall, curled, and waved petals of a ſnowy whiteneſs.

Culture of this RANUNCULUS.

It is propagated by parting of the roots, the proper time for doing which is in autumn: and toward the ſeaſon of their flowering, let them have frequent moderate waterings. The flowers muſt be taken off as they fade, and new ones will be thus produced in abundance moſt part of the ſummer.

Proliferous Mountain RANUNCULUS. This plant has a root formed of ſeveral oblong tuberous pieces. The leaves ſpread in cluſters upon the ground, and have ſhort foot-ſtalks; theſe are white with a light tinge of green: the leaves themſelves are of a pale pleaſing green, with a few ſtraggling whitiſh veins, which are very conſpicuous on the under-ſide, and the leaves often riſe into a kind of ſoft lumps or tubercles between them. The ſhape of the leaf is oval: it is a little hollowed in the broad part for the ſtalk, and grows narrower to a point: the edges are beautifully ſerrated; among theſe riſe the ſtalks: they are numerous, ſlender, of a whitiſh green, but tinged a little with red toward the baſe, and about four inches high: no leaves grow on theſe, each ſupports one flower, which in the ſtate of nature is large, yellow, formed of five petals, with a great cluſter of filaments in the middle, and of a light fragrance. But in this, as in all flowers, culture adds greatly to the natural beauty of it; on the top of each ſtalk, as it firſt riſes from the root, appears a green oval button, tipped with gold: this, as the ſmall ſtalk riſes in height, ſwells and expands, till by degrees it grows in the full luſtre of a double flower compoſed of multitudes of narrow and ſharp-pointed petals in various circular ſeries, and all of a delicate yellow. In the midſt are buried ſome fine threads with thin buttons, which impregnate the rudiments of many ſeeds, appearing afterwards in an oblong cluſter. In this ſtate the flower has great beauty and ſingularity of aſpect: the pointed form of the petals giving it this peculiarity.

But this is far from that ſtate of luſtre to which this flower may be brought, for where the ſoil ſuits, and no neglect of the gardener prevents, there will in the moſt vigorous plants appear on ſome ſtalks proliferous flowers. In theſe the firſt ſtructure is the ſame as in the others, but from the centre there riſes a ſmall ſtalk, ſupporting on its top a repreſentation in miniature of the firſt flower, but the colour is fainter: the bottom, where it joins the ſtalk, is white; the firſt ſeries of petals are alſo white, tipped with green, and tinged with a little yellow, and the reſt are of a fainter yellow than thoſe in the original or lower flower.

Culture of this RANUNCULUS.

It may be raiſed from parted roots, but it is beſt produced from ſeeds; theſe rarely ripen in the proliferous flowers, but as there are uſually ſome which are not proliferous from the ſame root with thoſe which are, let the gardener ſave his ſeeds from theſe, and for this purpoſe he muſt cut off the proliferous flowers from ſuch a plant as ſoon as they ſhew their nature, and then digging about the root and gently watering it, raiſe the other flowers to the moſt full perfection for ripening the ſeeds. As ſoon as the heads change colour, they muſt be cut off, and laid on a papered ſhelf, and the ſeeds will fall out when they begin to dry; they muſt then be ſpread to harden more perfectly, and after ten days they may be tied up in paper bags till the proper ſeaſon for ſowing them.

The laſt week in Auguſt dig up a border in a warm part of the garden, cover it five inches with freſh mould, from a dry rich paſture, and ſcatter on the ſeeds; ſiſt over them a quarter of an inch of any of the light compoſts, and lay ſome pieces of furze-buſh upon the ground.

The ſucceeding ſpring, when the plants have ſome little ſtrength, thin them by taking up the weakeſt, and planting them in other parts of the garden, leaving the others at eight inches diſtance in their original bed, from which they are never to be removed till the roots want parting.

Golden Proliferous RANUNCULUS. The root of this plant is tuberous and irregular, formed of ſeveral oblong pieces, with a few thick fibres. The firſt leaves are numerous; they ſpread variouſly from one head, ſome erect, and others on the ground: they are differently divided according to their growth and ſize, but always into threes; the ſegments are oblong and notched at the edges. The ſtalk is a foot high, round, of a pale green, ſomewhat hairy, and tolerably firm; there are two or three leaves upon it divided in the ſame manner as thoſe from the root, lightly hairy, and of a pale green. The top ſupports a large and very elegant flower, compoſed of almoſt innumerable petals, and of a bright gold yellow; from the centre riſes a ſlender green ſtalk, an inch and a half in length, ſupporting on its ſummit a ſmaller flower, perfectly reſembling the larger.

Culture of this RANUNCULUS.

It may be propagated either by parting the roots in the common method, or by ſeeds.

If from ſeeds the gardener muſt ſave them from a ſemi-double flower of the plain yellow kind, obſerving to fix on one that has a good firm ſtalk, and is every way of ſtrong and vigorous growth; let theſe be ripened with care, well hardened: and in Auguſt they muſt be ſown in a part of the garden open to the morning ſun, firſt digging the mould out, and filling up its place with a compoſt of three parts light paſture-earth, and one part old cow-dung: on this ſow the ſeeds evenly, and cover them a quarter of an inch with the ſame compoſt.

In the depth of winter let a mat be drawn over the bed, ſupported by low hoops, and at all times keep the ſurface clean from weeds, and carefully watered. The plants will flower the ſecond year, when there will be many very noble flowers of the more uſual kinds, and probably ſome of this proliferous ſort; they muſt be taken up when the leaves are faded, and in autumn planted amongſt the choiceſt kinds.

If the gardener ſhould not obtain this Ranunculus from one ſowing he will from another, and there will always be new, and beautiful flowers riſe from every ſowing to reward his labour.

Oriental Meadow RANUNCULUS. This plant has a root compoſed of numerous long fibres, connected to a ſmall head. The firſt leaves have long hollowed foot-ſtalks: they are large, and divided into a multitude of long narrow ſegments, they are of a tough ſubſtance, covered with a white, looſe, cottony matter, and their colour is a greyiſh green. The ſtalk is a foot high, upright, round, and divided into a few branches. The leaves ſtand alternately on this, and reſemble thoſe from the root, by their diviſion into numerous, long, and narrow parts. Their colour is the ſame whitiſh green with that of the others, and they are covered with the like cottony matter. The flowers terminate the ſtalks and branches, and ſeveral are ſupported alſo on ſlender foot-ſtalks, riſing from the boſoms of the upper leaves. Their colour is a beautiful, but not ſtrong, yellow.

Culture of this Ranunculus.

It is propagated by ſeeds, which muſt be ſaved from a ſtrong plant. It ſhould be marked while in flower, and all the flowers and buds, except three or four, cut off, and if there ſhould chance to be a flower with more than five petals, let that be certainly one of thoſe ſaved for ſeed: let the ground be cleared of weeds and other plants, of whatever kind, for a yard round about this, and once in four days break the ſurface well with a trowel, not going ſo deep as to diſturb the roots. Let the ſtalks which have flowers on them be tied up to ſticks, and every evening give the plant a gentle watering: let this be continued till the flowers are fallen, and the heads of the ſeeds have their full bigneſs: then give no more water, but leave the ſeeds to harden upon the ſtalk. When they begin to be looſe, carefully cut off the heads, and lay them to dry upon a papered ſhelf.

The latter end of Auguſt chuſe a part of the nurſery that is not too much expoſed to the ſun, and taking out the mould from a ſmall piece, throw in the following compoſt five inches thick:

A buſhel of rich meadow earth, taken from under the turf where there is ſome moiſture: three pecks of pond-mud, two of rotted cow-dung, and two quarts of coarſe ſand.

Scatter the ſeeds over the ſurface, and ſift upon them a third of an inch of the ſame mould: lay a piece of hawthorn over the bed, after which all the care it will require will be weeding in common with the other ground, and if the ſurface ſhould grow dry, a gentle watering. When the young plants appear they muſt be watered more frequently, and thinned where they ſtand too cloſe.

In the middle of April let another bed of the ſame compoſt be prepared for them: take them out of the ſeed-bed, and plant them regularly in this, at ſeven inches diſtance: here let them ſtand till autumn, and when they ſhew the ſigns of ſending up a ſtalk for flowering, let it be cut off in time, for the whole buſineſs now is to ſtrengthen the roots.

In autumn prepare a third bed of the ſame compoſt, and tranſplant them again at ten inches diſtance: cover them in the hard froſts, and the next year let them flower, without any other removal.

The ſeeds of the ſemi-double flowers muſt be ſaved and ſown again in the ſame manner; and when a double flower is once obtained, the propagation of it will be eaſy by parting of the roots in autumn.

Globe RANUNCULUS, *Trollius*, a genus of plants, ranged by Linnæus among the *polyandria polyginia*, and of which there are only two ſpecies. 1. Globe Ranunculus, with connivent corollæ and nectaria, of the length of the ſtamina, commonly called Locker Gowlans. 2. Globe Ranunculus, with patent flowers, and nectaria the length of the petals.

Both theſe plants have perennial roots: the firſt ſpecies is a native of England, Sweden, and Germany, and the ſecond grows naturally in Siberia and Cappadocia.

Culture of the Globe Ranunculus.

Both the ſpecies are propagated by parting of the roots about the end of September, when the leaves begin to decay: they ſhould be planted at a foot diſtance from each other, and require a moiſt ſoil and a ſhady ſituation.

The ſecond ſort ſucceeds beſt on a north border, where the ſoil is loamy, but not ſtiff.

RAPE, Coleseed, or Navew, a ſpecies of the Cabbage or Braſſica, is propagated in the fields, in many parts of England, to great advantage, for the oil expreſſed from the ſeeds, as well as for feeding of cattle: but never being cultivated in gardens, renders it a ſubject improper for this work.

RASPBERRY, or *Bramble* BUSH, *Rubus*, a genus of plants, ranged by Linnæus among the *icoſandria polygamia*, and of which there are ten ſpecies, moſt of them growing wild in the hedges all over England: but the ſpecies generally cultivated in gardens is Raſpberry-buſh with winged leaves, furniſhed with five and three lobes, a prickly ſtalk, and channelled foot-ſtalks: of this there are three varieties. 1. The common Raſpberry. 2. The late red Raſpberry; and 3. The white Raſpberry.

Culture of the Raspberry-bush.

Theſe ſhrubs ſend up great plenty of ſuckers from their roots, and are very eaſily propagated by them.

They ſhould be taken up in October, and before they are re-planted their fibres ſhould be ſhortened: but the buds, which are at a ſmall diſtance from the ſtem of the plant, muſt not be cut off, becauſe theſe produce new ſhoots the next ſummer.

They ſhould be planted two feet aſunder, and ſet in rows, which ſhould be five feet diſtance from one another; they thrive beſt in a freſh ſandy loam, which ſhould neither be too moiſt nor over dry.

The time for dreſſing them is October, when all the old wood which produced fruit the ſucceeding ſummer ſhould be cut down to the ground, and the young ſhoots ſhortened to about two feet in length. The ſpaces between the rows ſhould then be dug up, and ſome rotten dung buried in them. In the ſummer they muſt be kept clean from weeds, and once in three or four years there ſhould be new beds made, and the old ones deſtroyed, for they ſeldom bear well after that time.

Senega RATTLE SNAKE WORT, a ſpecies of Milk-wort. See the article Milk-wort.

RATTLE SNAKE WEED, a ſpecies of Eringo. See Eringo.

RAUVOLFIA, a genus of plants, of which there are only two ſpecies. 1. Rauvolfia, with four ſpear-ſhaped, entire leaves at each joint. 2. Rauvolfia, with oval, ſpear-ſhaped leaves, ſomewhat indented.

Both theſe ſpecies are natives of the warmeſt parts of America: they flower moſt part of the ſummer, and the fruit, which is a round black-berry, ripens in autumn and winter.

Culture of the Rauvolfia.

Theſe plants are propagated by ſeeds, which ſhould be ſown in autumn ſoon after they are ripe, in pots, and plunged into a hot-bed of tanners-bark; theſe pots muſt be ſhifted from one bed to another as the heat decays, till the plants appear; which, as the ſeeds are very hard, will be ſome time firſt.

When the plants come up, they ſhould have a large ſhare of freſh air admitted to them in warm weather, and but little water. When they are two inches high they muſt each be tranſplanted into a ſeparate ſmall pot, and plunged into the hot-bed again, where they muſt be ſhaded from the ſun till they have taken new root, after which they ſhould be allowed freſh air in proportion to the warmth of the ſeaſon. In this hot-bed the plants may remain till toward Michaelmas, when they ſhould be removed into the ſtove, and plunged into the tan-bed, where they ſhould conſtantly remain, and not have too much water in cold weather.

In ſummer they muſt always have a great quantity of air, and the leaves muſt be now and then waſhed with a ſponge to clear them from the filth they are apt to contract.

They may alſo be propagated by cuttings, which ſhould be laid to dry for two or three days before they are planted, and then ſhould be plunged into a moderate hot-bed of tanners-bark, where they muſt be ſhaded till they have taken root, after which they may be treated as the ſeedling plants.

RAY, *Radius*, ſeveral ſemi-florets ſet round the diſk of a flower. See the article Disk.

RECEPTACLE, *Receptaculum*, that part of the plant to which the flower of the fruit adheres: this is a part of a very various figure, in the various genera.

REDWOOD, a ſpecies of Cearothus.

This plant is a native of the American iſlands. It riſes with a ſhrubby ſtalk eighteen or twenty feet high, ſending out ſeveral horizontal branches. The leaves are oval and veined. The flowers grow from the wings of the leaves, having very ſhort foot-ſtalks: they are of a white herbaceous colour.

Culture of the Redwood.

It is propagated by ſeeds, which muſt be ſown upon a hot-bed in the ſpring; and when the plants are fit to remove, they ſhould be each planted into a ſeparate ſmall pot filled with light ſandy earth, and plunged into a hot-bed of tanners-bark, where they muſt be ſhaded till they have taken root, after which they muſt be treated in the ſame manner as other tender exotics. In the autumn they muſt be placed in the bark-ſtove, and during the winter watered with great caution, for too much moiſture at that ſeaſon will deſtroy them.

REED, *Arundo*, a genus of plants, ranged by Linnæus among the *triandria digynia*, and of which there are ſix ſpecies. 1. Reed tree, or Bambo, or Bambu. 2. Reed, with three flowers in each cup, growing in diffuſed panicles. 3. Reed, with five flowers in each cup, growing in looſe panicles; or the common Marſh Reed. 4. Reed, with one flower in each cup, growing in an erect panicle, and leaves ſmooth on the under ſide. 5. Reed, with one flower in each cup, and a branched ſtalk. 6. Reed, with one flower in each cup, and involute, pointed, pungent leaves.

The firſt ſpecies is a native of both the Indies; the ſecond grows naturally in France and Spain; the third in marſhy places in this country, and other parts of Europe; and the fourth, fifth, and ſixth ſorts are all natives of different parts of Europe.

Culture of the Reed.

The firſt ſpecies is propagated by ſlips from the root, which muſt be planted in tubs filled with rich earth, and plunged into the tan-bed of the bark-ſtove, where they muſt be preſerved: and when the tubs decay, the plants muſt be permitted to root in the tan.

The ſecond ſpecies is propagated by parting the roots early in the ſpring, before they begin to ſhoot, and will, in a year or two, if the ground is good, make very large ſhoots, from each of which there may be twenty or thirty canes produced.

The other four ſpecies are never cultivated, except in botanic gardens for the ſake of variety.

Flowering or *Indian* REED, or CANE. See the article *Indian Flowering* Cane.

REST-HARROW, Cammock, or Petty-Whin, *Ononis*, a genus of plants ranged by Linnæus among the *diadelphia decandria*, of which there are twelve ſpecies: and of theſe the following ſeven are cultivated in gardens. 1. Reſt-harrow, with flowers ſitting cloſe on the ſides of the ſtalks, with all the leaves trifoliate, growing upon foot-ſtalks, and briſtly ſtipulæ. 2. Reſt-harrow, with leafy ſpikes, and ſingle, obtuſe leaves. 3. Reſt-harrow, with one flower on a foot-ſtalk, terminated by a thread, and with trifoliate leaves. 4. Reſt-harrow, with two flowers on a foot-ſtalk, terminated by a thread. 5. Reſt-harrow, with trifoliate, fleſhy leaves, which are narrow, and have three indentures. 6. Reſt-harrow, with paniculated flowers, generally growing three upon a foot-ſtalk, ſheath-like ſtipulæ, and trifoliate leaves. 7. Reſt-harrow, with naked foot-ſtalks proceeding from the ſides of the branches, ſuſtaining three flowers, and trifoliate leaves.

The firſt ſpecies is a native of France and Italy. The ſecond of Sicily, Spain, and Portugal. The third of France and Spain. The fourth grows naturally in Sicily. The fifth in Spain. The ſixth on the Alps; and the ſeventh in Switzerland.

Culture of the Rest-harrow.

The firſt, ſecond, and fourth ſpecies are eaſily propagated by ſeeds, which ſhould be ſown in the places where the plants are to remain. They require no other care than to be thinned where they grow too cloſe, and to be kept clean from weeds.

The ſeeds of the third ſpecies ſhould be ſown in drills, upon a bed of light earth. When the plants come up they muſt be kept clean from weeds, and in autumn carefully taken up, and tranſplanted into the borders of the pleaſure-garden, where they are to remain.

The fifth, ſixth, and ſeventh ſpecies are alſo propagated by ſeeds, which ſhould be ſown in April, upon a bed of light earth. In May the plants will come up, when they muſt be kept clear from weeds till the following autumn, and then tranſplanted to the places where they are to remain.

The fifth ſpecies requires a warm ſituation, and muſt always be protected from the froſt.

RHAMNUS, *Buckthorn*, a genus of plants ranged by Linnæus among the *pentandria monogynia*; there are four ſpecies of it, but one of them only is worth cultivating in gardens.

This plant is a native of the Cape of Good Hope. It riſes with a ſhrubby ſtalk to the height of five feet. The branches, when young, are covered with a green bark, which afterwards becomes brown. The leaves are wedge-ſhaped: theſe grow at each joint, four, five, and ſometimes ſix, riſing from the ſame point; they are of a deep green, and continue ſo all the year, which renders it very valuable in winter. The flowers, which are white, grow in bunches: they have ſhort tubes, and their upper part is cut into five acute ſegments, which ſpread open in form of a ſtar. In June the whole ſhrub ſeems covered with theſe flowers, which make a moſt elegant and beautiful appearance. This ſhrub does not ripen ſeeds in England.

Culture of the Rhamnus.

It is eaſily propagated by cuttings, which ſhould be planted in pots the beginning of April, and plunged into a moderate hot-bed, where they muſt be ſhaded from the ſun, and have very little water. In about ſix weeks they will have taken root, when by degrees they ſhould be inured to the open air, into which they muſt be removed ſoon after.

When they are well hardened they may be ſhaken out of the pots and ſeparated, obſerving to preſerve a ball of earth to each, and plant them into ſeparate pots, placing them in the ſhade till they have taken new root. They may remain abroad, in a ſheltered ſituation, till the autumn, at which time they muſt be houſed, and treated in the ſame manner as Myrtles, and other hardy greenhouſe plants.

RHAPONTIC-ROOT, a ſpecies of Rhubarb. See Rhubarb.

RHEXIA, a genus of plants, of which there are only two ſpecies. 1. Rhexia, with hairy leaves. 2. Rhexia, with ſmooth empalements.

The firſt ſpecies is a native of Maryland, and the ſecond of Virginia.

Culture of the Rhexia.

Both theſe ſpecies are propagated by ſeeds, which muſt be procured from the places where they grow naturally. Theſe ſhould be ſown, as ſoon as they arrive, in pots filled with light earth: if they are ſown before the ſpring, and placed under a garden-frame to protect them from froſts, the plants will come up the ſpring following: but when they are ſown in the ſpring, the plants ſeldom come up the firſt year.

When the plants are fit to be removed, they ſhould be tranſplanted into ſeparate pots: and in very ſevere weather they muſt be ſheltered under a frame. The ſecond year the plants will flower.

RHUBARB, *Rheum*, a genus of plants ranged by Linnæus among the *enneandria trigynia*, and of which there are three ſpecies. 1. Rhubarb, with ſmooth leaves, and foot-ſtalks ſomewhat furrowed; or the Rhapontic or Engliſh Rhubarb. 2. Rhubarb, with hairy leaves, and equal foot-ſtalks; or the true Rhubarb. 3. Rhubarb, with granulated leaves, and equal foot-ſtalks; called by the Arabians Ribes.

The firſt ſpecies is a native of Thrace and Scythia, and has long been an inhabitant of the Engliſh gardens. The ſecond grows naturally in China and Siberia; and the third is a native of Perſia and Syria.

Culture of the Rhubarb.

Theſe plants are all propagated by ſeeds, which ſhould be ſown in autumn ſoon after they are ripe, in the places where the plants are deſigned to remain.

When the plants appear in the ſpring, the ground ſhould be hoed over to cut up the weeds, and they ſhould be thinned ſo as to ſtand at the diſtance of ſix or eight inches aſunder. Some time after they muſt be hoed again, and thinned to the diſtance of two feet, after which they only require the common care of being kept clear from weeds.

They delight in a rich ſoil, not too dry nor over moiſt.

RIBES, a ſpecies of Rhubarb. See the laſt article.

RICINUS, or PALMA CHRISTI, a genus of plants, of which there are eight ſpecies. 1. Ricinus, with target-ſhaped, ſawed leaves, which are grey on their under ſide, and foot-ſtalks bearing glands. 2. Ricinus, with target-ſhaped leaves, which are ſomewhat ſawed, and green on both ſides. 3. Ricinus, with target-ſhaped leaves, which are unequally ſawed. 4. Palma Chriſti, with target-ſhaped, ſawed leaves, and rough capſules to the fruit. 5. Ricinus, with target-ſhaped, ſawed leaves, a jointed ſtalk, and prickly covers to the ſeeds. 6. Palma Chriſti, with ſawed, target-ſhaped leaves, a jointed ſtalk, and ſmooth covers to the ſeeds. 7. Ricinus, with hand-ſhaped, ſawed leaves, which are deeply divided, and prickly covers to the ſeeds. 8. Palma Chriſti, with hand-ſhaped, ſawed leaves, and ſmooth covers to the ſeeds.

The firſt ſpecies is a native of Sicily, and other warm parts of Europe. The ſecond and third of the Weſt-Indies. The fourth and fifth ſorts grow naturally in both Indies. The ſixth and eighth in the Spaniſh Weſt-Indies; and the ſeventh in Carolina and ſeveral other parts of North America.

Culture of the Ricinus.

Theſe plants are all propagated by ſeeds, which muſt be ſown upon a hot-bed in the ſpring: and when the plants are come up, they muſt be each tranſplanted into a ſeparate pot, and plunged into a freſh hot-bed. When their roots have filled theſe pots, which they will ſoon do, the plants muſt be ſhifted into larger, which muſt be done from time to time as occaſion ſhall require. In June they may be hardened by degrees to the open air, into which they may be removed ſoon after, placing them in a warm ſituation, where they may remain till the middle or end of October, when they muſt be houſed with other hardy exotics; they muſt have very little water in winter, and a great ſhare of freſh air admitted to them when the weather is mild.

Some of the plants, at the time of firſt tranſplanting them, may be ſhook out of the pots, and planted out into a very rich border, where, if regularly watered in dry weather, they will grow to a very large ſize.

Baſtard RICINUS, *Croton*, a genus of plants ranged by Linnæus among the *monoecia monodelphia*, and of which there are nine ſpecies. 1. Baſtard Ricinus, with rhomboid, ſpreading leaves, pendulous capſules, and an herbaceous ſtalk. 2. Baſtard Ricinus, with oblong, ſawed leaves. 3. Baſtard Ricinus, with trifid, or quinquefid, ſawed leaves. 4. Baſtard Ricinus, with oblong, pointed leaves, and an herbaceous ſtalk. 5. Baſtard Ricinus, with a laurel leaf, and a very large green empalement to the flower. 6. Baſtard Ricinus, with hairy leaves. 7. Baſtard Ricinus, with narrow leaves, which are white on their under ſide, commonly called Spaniſh Roſemary in Jamaica. 8. Baſtard Ricinus, with a marſhmallow leaf. 9. Baſtard Ricinus, with roundiſh, ſawed leaves, ſilvery on their under ſide.

The firſt ſpecies grows naturally in the ſouth of France. The ſecond and third are natives of La Vera Cruz. The fourth of the Havannah. The fifth, ſixth, ſeventh, and eighth are all natives of Jamaica; and the ninth grows naturally at Campeachy.

Culture of the Baſtard Ricinus.

The firſt ſpecies is propagated by ſeeds, which ſhould be ſown early in the ſpring, on a border of light earth in a warm ſituation, where it is deſigned to remain. When the plants come up they ſhould be thinned, ſo as to be left at the diſtance of eight inches aſunder; after which they will require no other care but to be kept clean from weeds.

All the other ſpecies are propagated by ſeeds: thoſe of the fifth, ſeventh, and eighth ſpecies muſt be procured from the places where they grow naturally, for they very ſeldom perfect them here.

The ſeeds muſt be ſown on a hot-bed early in the ſpring, and when the plants are fit to remove, they ſhould be each tranſplanted into a ſmall pot, and plunged into a moderate hot-bed of tanners-bark, where they muſt be ſhaded from the ſun till they have taken freſh root, after which the air muſt be admitted to them in proportion to the warmth of the ſeaſon.

After the plants are grown too tall to remain in the frames, they ſhould be removed either into the ſtove or a glaſs-caſe, where there is a hot-bed of tanners-bark, into which the pots ſhould be plunged, where all but the fifth, ſeventh, and eighth ſpecies will flower and perfect their ſeeds: but theſe three muſt be removed into the bark-ſtove in the autumn, and during the winter ſeaſon they ſhould have but little water.

RIVINIA, a genus of plants which has no Engliſh name, ranged by Linnæus among the *tetrandria monogynia*, and of which there are only two ſpecies. 1. Rivinia, with ſpear-ſhaped, entire leaves, and a ſhrubby, branching ſtalk. 2. Rivinia, with nightſhade leaves.

The firſt ſpecies is a native of Jamaica, and the ſecond of Antigua.

Culture of the Rivinia.

Both theſe ſpecies are propagated by ſeeds, which ſhould be ſown in pots, and plunged into a moderate hot-bed. Before winter theſe pots ſhould be removed into the ſtove, and plunged into the tan-bed, where the earth muſt be ſometimes refreſhed with a little water, but never made too moiſt.

In the ſpring the pots may be taken out of the ſtove, and plunged into a freſh hot-bed to bring up the plants: but if they ſhould not riſe the earth muſt not be diſturbed, for they may come up the following ſpring.

When the plants come up and are fit to remove, they ſhould be each tranſplanted into a ſeparate ſmall pot, plunged into a hot-bed, and treated in every reſpect like other plants from the ſame countries.

ROAN-TREE, a ſpecies of the Service-tree. See the article Service-tree.

Ragged ROBIN, a ſpecies of Lychnis. See Lychnis.

Wake ROBIN. See the article Arum.

ROBINIA, *Falſe Acacia*, a genus of plants ranged by Linnæus among the *diadelphia decandria*, and of which there are five ſpecies. 1. Robinia, with foot-ſtalks ſupporting bunches of flowers, and with unequal winged leaves. 2. Robinia, with ſubdivided foot-ſtalks, winged leaves, and flowers larger than the lobes. 3. Robinia, with ſingle foot-ſtalks, and leaves abruptly winged. 4. Robinia, with ſingle foot-ſtalks, and leaves growing by fours upon foot-ſtalks. 5. Robinia, with ſingle ſtalks, and ſeſſile leaves growing by fours.

The firſt ſpecies is a native of North America, where it grows to a very large ſize, and the wood is much valued for its duration. The ſecond ſort grows naturally in India; and the third, fourth, and fifth ſpecies are natives of Siberia, and ſome parts of Tartary.

Culture of the Robinia.

The firſt, third, fourth, and fifth ſpecies are propagated by ſeeds, which ſhould be ſown in ſpring or autumn, upon a bed of light earth. When the plants are come up they will require no other care but to keep them clean from weeds till they have gathered ſome ſtrength, when they ſhould be tranſplanted into a nurſery, and placed in rows three feet diſtance, and a foot and a half diſtant in the rows: here let them remain two years, by which time they will be fit to tranſplant into the places where they are deſigned to ſtand.

They may alſo be propagated by ſuckers taken from the roots of the old trees.

The ſecond ſpecies is propagated by ſeeds, which ſhould be ſown in ſmall pots and plunged into a hot-bed of tanners-bark. In about two months the plants will appear; when they have acquired a little ſtrength they muſt be carefully ſhaken out of the pots, and their roots ſeparated, putting each plant into a ſmall pot, and plunge them into a hot-bed of tanners-bark, where they muſt be treated like other tender plants from the ſame countries.

ROCKET, *Eruca*, a ſpecies of the Cabbage or Braſſica.

Culture of the Rocket.

If this plant is propagated for ſallads, it ſhould be ſown in drills, in the ſame manner as is uſually practiſed for all other ſallad herbs.

When it is cultivated for the ſeeds, which are ſometimes uſed in medicine, it ſhould be ſown in March on an open ſpot of ground; and when the plants have put out four leaves, they ſhould be hoed to deſtroy the weeds, and thinned ſo as to be left at the diſtance of three or four inches aſunder. In about five weeks after the ground ſhould be a ſecond time hoed: and when the ſeeds are ripe the plants ſhould be drawn up and ſpread out upon a cloth for a few days to dry, and then the ſeeds are to be beat out of the pods and put up for uſe.

ROCKET, Dame's Violet, or Queens Gilliflower, *Heſperis*, a genus of plants ranged by Linnæus among the *tetradynimia ſiliquoſa*, and of which there are ſeven ſpecies. 1. Rocket, with a prickly, branching, ſpreading ſtalk; or the ſweeteſt pale mountain Rocket. 2. Rocket, with a ſingle, erect ſtalk, oval, ſpear-ſhaped, indented leaves, and the tips of the petals indented; or the garden Rocket. 3. Rocket, with a ſingle ſtalk, ſpear-ſhaped, indented, trifoliate leaves, and obtuſe, intire petals. 4. Rocket, with very branching, diffuſe ſtalks, ſpear-ſhaped, rough, ſawed leaves, and pods cloſe to the ſtalks. 5. Rocket, with a diffuſe, branching ſtalk, and taper pods. 6. Rocket, with wing-pointed, indented leaves, and a ſmooth ſtalk. 7. Rocket, with an erect, branching ſtalk, and hairy, ſawed, heart-ſhaped leaves embracing the ſtalk.

The firſt ſpecies grows naturally in Hungary, and is much cultivated in the gardens abroad, for the fragrancy of its flowers, though it is rarely ſeen in the Engliſh gardens.

The ſecond ſort is a native of Italy, and was formerly in much greater eſteem in England than it is at preſent; but there is a variety of it with double flowers, greatly eſteemed for its beauty, and much cultivated in our gardens.

The third and fifth ſpecies are natives of Europe.

The fourth ſpecies is a native of Africa, and only cultivated in botanic gardens for the ſake of variety.

The ſixth ſpecies is a native of Sicily, and the ſeventh of France.

Culture of the Rocket.

The firſt, ſecond, third, fifth, and ſeventh ſpecies, are propagated by ſeeds, which, if permitted to ſcatter, the plants will come up in the ſpring; but if the ſeeds are ſown, the beſt time for it is autumn, for if the ſeaſon proves dry, thoſe ſown in the ſpring often fail, or remain a long time in the ground before they vegetate. Theſe plants require a loamy undunged ſoil.

If the ſeeds of the fourth and ſixth ſpecies are permitted to ſcatter, the plants will come up without any other trouble than that of being kept clear from weeds.

ROELLA, a genus of plants ranged by Linnæus among the *pentandria monogynia*, and of which there is only one ſpecies.

This is a ſhrubby plant, and a native of Africa. The root is whitiſh, large, and divided, and it ſends to a great diſtance a number of thick fibres. The ſtem riſes to no great height; it is woody, and covered with a brown bark; it divides almoſt from the ground into innumerable branches, and forms a wild buſh of very pleaſing aſpect. The leaves are ſmall, and have no footſtalks; they are oblong, narrow, ſharp-pointed, and of a very firm ſubſtance. Their colour is a lively green, and on each ſide they are edged with rows of fine hairs, reſembling weak thorns. The flowers terminate the branches; they are large and very beautiful; each is formed of a vaſt ſingle petal, irregularly divided into four, five, or ſix great ſegments at the edge. The colour of theſe ſegments is a deep and glowing purple, and in the centre the flower becomes almoſt white.

Culture of the Roella.

It is propagated by ſeeds, which never ſucceed ſo well as when brought from its natural place of growth. They muſt be ſown upon a hot-bed early in the ſpring, and raiſed with the uſual care, tranſplanting them from one bed to another as they gather ſtrength, and after three removals, into pots, filled with the following compoſt, which muſt be prepared ſome months before it is wanted: Mix four buſhels of rich earth, from a paſture, with one buſhel of pond-mud, five pecks of old dung from a melon-bed, and two pecks of ſand.

The pots muſt be of a middling ſize, and when the plants are ſet, one in each pot, give them a gentle watering, and place the pots in a bark-bed, that has not too much heat: after they have been ſhaded, and carefully watered in this bed, for ſome days, let the air be admitted by degrees, that they may be hardened to bear the open ſituation of the green-houſe plants in ſummer; among which they muſt be placed in the warmeſt months, and at the approach of autumn taken into the green-houſe.

RONDELETIA, a genus of plants, of which there are only two ſpecies. 1. Rondeletia with leaves growing upon footſtalks. 2. Rondeletia with leaves ſitting cloſe to the branches.

The firſt ſpecies is a native of Malabar. It riſes with a woody ſtem ſix feet high. The branches are covered with a ſmooth bark. The leaves are oval, ſtiff, and of a lucid green. The flowers terminate the branches in large bunches: they are of a yellowiſh white colour, and have a fragrant odour.

The ſecond ſpecies is a native of Jamaica and the Spaniſh Weſt Indies. It riſes to the height of ten feet. The leaves are oblong, and end in acute points; their colour is a lucid green on the upper ſide, but the under is paler. The flowers, which are white, grow in bunches at the ends of the branches; they have very little ſcent.

Culture of the Rondeletia.

Both ſpecies are propagated by ſeeds, which ſhould be ſown on a hot-bed early in the ſpring; when the plants are come up and fit to remove, they muſt be tranſplanted into ſeparate ſmall pots, and plunged into a moderate hot-bed of tanners-bark, where they muſt be treated like other tender plants from the ſame country.

ROOT, that part of a plant which imbibes the nutritious juices of the earth, and tranſmits them to the other parts; or the part of a plant by which it draws its nouriſhment, and which alſo produces the herb with the fructification.

The roots of plants are diſtinguiſhed according to their different forms: thus, a *bulbous* root is one of a round, or roundiſh figure, uſually furniſhed with fibres at its baſe. The terms uſed in deſcribing bulbous roots are,

1. *Solid*, which expreſſes the whole root to be one uniform lump of matter.

2. *Tunicated*, expreſſing ſuch bulbs as are formed of multitudes of coats, ſurrounding one another.

3. *Squammoſe*, expreſſes ſuch as are compoſed of, or covered with leſſer flakes.

4. *Duplicate*, ſuch roots as are compoſed of two, and;

5. *Aggregate*, ſuch as are compoſed of ſeveral ſmaller roots.

Tuberous expreſſes a root large and fleſhy, thicker than the ſtalk of the plant, of an irregular figure, and wanting the characters of the bulbous. When the tuberous roots adhere immediately to the baſe of the ſtalk, they are called ſeſſile; and when they are fixed to the ends of the fibres, pendulous.

Fibrous expreſſes a root, conſiſting of one or more ſlender bodies, oblong, and leſs thick than the ſtalk of the plant. When a fibrous root penetrates ſtraight into the ground, it is called *perpendicular*; when it creeps under the ſurface, *horizontal*; when ſomewhat thick, it is called *fleſhy*; when very thin, *capillary*; when it runs all the way undivided, *ſimple*; when divided, or when it ſends off ſmaller roots, *branched*; when its ſurface is covered with extremely ſhort and fine fibres, *hairy*.

Hollow ROOT. See the article Moschatel.

ROSE TREE, *Roſa*, a genus of plants ranged by Linnæus among the *icoſandria polyginia*, and of which he diſtinguiſhes only twelve ſpecies, but other authors have enumerated a great number more, all of which have ſeveral varieties.

Culture of the Rose-Tree.

All the ſorts of Roſes may be propagated either by ſuckers, by layers, or by budding them upon ſtocks of other ſorts of Roſes; the laſt method is only neceſſary for the finer ſorts, which do not naturally ſhoot vigorouſly, and with very few ſuckers. The beſt ſort of Roſes for ſtocks is the Frankfort kind; the ſeaſon for doing it is in June, and there muſt be great care taken afterwards, that the ſtalk produce no ſuckers at the bottom, for theſe would ſoon ſtarve the bud.

When roſes are to be propagated from ſuckers, they are to be taken off annually, and planted into nurſery beds, or into the places where they are to ſtand. They always take root the firſt year, but if ſuffered to remain on the ſtock longer, they grow woody, and often fail.

But the beſt method of obtaining vigorous plants, is by laying down the ſhoots; this muſt be done in autumn, and by the autumn following they will have taken root ſo well, that they may be cut off from the old plant, and removed to the places where they are to remain. Theſe may be tranſplanted any time from October to April, but the earlier the better.

Roſes in general delight in a rich, moiſt ſoil, and an open ſituation, in which they will produce a great number of flowers, and thoſe much more beautiful than when they are on a dry ſoil, and in a ſhady ſituation.

All the pruning they require is, to have their dead wood cut, and their ſuckers taken away every autumn; and if there are any very luxuriant branches, they may be ſhortened, and the doing this will ſupply the other parts of the teee with freſh wood.

ROSE *of Jericho*, *Anaſtatica*, a genus of plants ranged by Linnæus among the *tetradynamia ſiliculoſa*, and of which there is only one ſpecies.

This is an annual plant, which grows naturally about the ſhores of the Red Sea, and in many parts of Syria. The flowers have no beauty; but when the ſeeds are ripe, the branches will draw up and contract, ſo that the whole plant forms a kind of ball, or globular body, which will expand again, on being laid a little time in warm water; the ſingularity of this property, induces many perſons to preſerve theſe plants in their repoſitories of curioſities.

Culture of the Rose *of Jericho.*

It is propagated by ſeeds, which ſhould be ſown the beginning of April, on a border of light ſandy earth. When the plants are come up, they ſhould be thinned ſo as to ſtand at the diſtance of eight inches one from another; after which they only require to be kept clear from weeds. They flower in Auguſt, but ſeldom ripen their ſeeds in England.

ROSE-BAY. See the article Oleander.

China ROSE, a ſpecies of Hibiſcus. See the article Hibiscus.

Dwarf ROSE-BAY, *Rhododendron*, a genus of plants ranged by Linnæus among the *decandria monogynia*, and of which there are many ſpecies; but three of them only are cultivated in England, *viz.* 1. Roſe-bay with naked hairy leaves and funnel-ſhaped petals. 2. Roſe-bay with ſmooth leaves, which are hoary on their under ſide. 3. Roſe-bay with oval leaves, ſharply reflexed on their borders.

The firſt ſpecies is a low ſhrub, ſeldom exceeding two feet in height; it ſends out a great number of ſhort ligneous branches. The leaves are oval, entire, and have a great number of fine iron-coloured hairs on their under ſides. The flowers terminate the branches in bunches; they are of a pale red colour, and compoſed of one funnel-ſhaped petal; the tube is about half an inch long, and the brim is cut into five obtuſe ſegments, which ſpread half open.

The ſecond ſpecies, like the former, grows naturally on the Alps, and ſeveral mountains in Italy. It is a ſhrub about three feet high, having many irregular branches. The leaves are ſmooth, ſpear-ſhaped, and entire, the upper ſide is of a lucid green, and the under of an iron colour. The flowers terminate the branches, they are funnel-ſhaped, and have ſhort tubes cut into five acute ſegments at the brim, which ſpread a little open; they are of a beautiful pale Roſe colour.

The third ſpecies is a native of North America; where there uſually riſe ſeveral ſtems from one root, which grow ten or twelve feet high. The leaves are large, of a thick conſiſtence, and continue green all the year. The flowers are of a delicate pale Roſe colour, ſpotted with a deeper red.

Culture of the Dwarf Rose-Bay.

Theſe plants are propagated by ſeeds, which ſhould be ſown as ſoon as they are ripe, in pots filled with freſh loamy earth, and covered very lightly with a little fine earth, then plunge the pots up to the rims in a ſhady border, and in hard froſt they muſt be covered with bell or hand-glaſſes, which ſhould be taken off in mild weather. When the plants come up, they muſt be kept ſhaded from the ſun, and often refreſhed with water. The autumn following they may be tranſplanted to a ſhady ſituation, on a loamy ſoil, covering the ground about their roots with moſs, which will preſerve them from froſt in the winter, and keep the ground moiſt in ſummer.

Guelder ROSE. See the article Guelder-Rose.

Virginia Guelder ROSE, a ſpecies of Spiræa. See the article Spiræa.

Rock ROSE, *Ciſtus*, a genus of plants ranged by Linnæus among the *polyandria monogynia*, and of which there are ſeveral ſpecies, moſt of them ſhrubby plants, and natives of Italy, France, Spain, Portugal, or England.

They are great ornaments to a garden; their flowers are produced in plenty all over the ſhrub, which though but of ſhort duration, yet are ſucceeded by freſh ones almoſt every day for above two months.

For a beautiful variety of the Rock-Roſe, ſee the article *Spotted* Cistus.

Culture of the Rock Rose.

The ſeveral ſorts of this beautiful ſhrub are propagated by ſeeds, which muſt be ſown in March on a gentle hot-bed, or on a warm border of common rich earth. When the plants are about three inches high, they ſhould be tranſplanted either into ſmall pots, or into a border of rich earth, allowing the ſpace of ten inches between each plant. The firſt winter they muſt be protected from hard froſts, and ſometimes gently watered.

The ſpring following, they muſt be very carefully removed, with as much as poſſible of their own earth about them, and placed where they are to remain. Theſe plants ſeldom ſucceed if removed when old.

They may alſo be propagated by cuttings, which muſt be planted in a rich bed, and ſhaded with mats, obſerving to water them carefully for two months; by which time they will have taken root, and may then be treated as the ſeedling plants of the ſame age.

ROSEMARY, *Roſemarinus*, a genus of plants ranged by Linnæus among the *diandria monogynia*, and of which there is only one ſpecies; but we have three or four different varieties of this ſhrub in our gardens; which grow wild in the ſouth of France, in Spain, and in Italy, on the rocks near the ſea, where they multiply prodigiouſly. With us they grow the moſt vigorouſly on a moiſt, rich ſoil, but they are much ſweeter ſcented when on poor ground, and on ſuch they bear the ſeverity of our winters much better, than where they grow more freely.

Culture of the Rosemary.

All theſe plants are propagated by planting ſlips or cuttings of them, in the ſpring of the year, on a bed of light freſh earth, and when they are rooted, they muſt be removed into the places where they are to remain. The beſt ſeaſon for doing this is in Auguſt, for if they are planted later, they ſeldom live through the winter; therefore ſuch as are not tranſplanted at this time ſhould be left till the following ſpring, when March is a very good time for removing them; and if this is done in ſhowery weather, they take root almoſt immediately.

The plants are ſometimes killed in cold winters, but when by accident they have rooted themſelves in an old wall, as is often the caſe, they ſtand all weathers unhurt, which is owing to their being ſtinted and their roots dry.

ROYENA, a genus of plants, which has no Engliſh name, and of which there are three ſpecies. 1. Royena with oval, rough leaves. 2. Royena with ſmooth, ſpear-ſhaped leaves. 3. Royena with hairy ſpear-ſhaped leaves.

Theſe plants are natives of the Cape of Good Hope. The firſt ſpecies riſes to the height of ten feet. The leaves are oval, ſhining, and continue green all the year. The flowers have no beauty.

The ſecond ſpecies riſes with a ſhrubby ſtalk ſix feet high. The leaves are oval, extremely ſmall, ſmooth, entire, of a lucid green, which continues all the year. The flowers are white, and ſucceeded by a purple fruit, which ripens in winter.

The third ſpecies riſes with a ſtrong woody ſtem, ſeven feet high. The leaves are ſpear-ſhaped, hoary, and covered with ſoft hairs. The flowers are very ſmall, and their colour a dingy purple.

Culture of the ROYENA.

Theſe plants are all propagated by cuttings, which in September muſt be planted in ſmall pots, and plunged into a very moderate hot-bed, where they muſt be covered with hand-glaſſes, and refreſhed with a little water once in ten days. When the cuttings ſhoot, they muſt be gradually inured to bear the open air.

If the plants put out any young ſhoots from the bottom, they ſhould be carefully laid down in the ground while young, ſlitting them in the ſame manner as is practiſed for carnations. They muſt be frequently, but gently watered, during the warm weather, but in winter very little ſhould be given them. When theſe are rooted, they may be taken off, and treated in the ſame way as the cuttings.

Theſe plants muſt always be removed into the greenhouſe in autumn, and treated in the ſame manner as the orange-trees.

RUE, *Ruta*, a genus of plants ranged by Linnæus among the *decandria monogynia*, and of which there are three ſpecies. 1. Rue with decompounded leaves, or the broad-leaved garden Rue. 2. Rue with trifoliate ſeſſile leaves. 3. Rue with ſingle undivided leaves.

Culture of the RUE.

All theſe ſpecies are propagated either by ſowing their ſeeds or by planting ſlips or cuttings, both which muſt be done in the ſpring, on a bed of light earth; and when the young plants are about two inches high, they ſhould be removed to the places where they are deſigned to remain.

Goat's RUE, a genus of plants ranged by Linnæus among the *diadelphia decandria*, and of which he diſtinguiſhes only one ſpecies.

This plant has a perennial root, and grows naturally upon the borders of cultivated fields in Italy, Spain, and Africa.

Culture of the Goat's RUE.

It is propagated by ſeeds, which may be ſown either in the ſpring or autumn, in an open ſituation. The plants, when they come up muſt be kept clear of weeds, till they are ſtrong enough to be removed; then a ſpot of ground, proportionable to the quantity of plants ſhould be well dug, and cleared from the roots of all noxious weeds; after which the plants being taken carefully up, ſhould be planted one foot aſunder, in rows at the diſtance of one foot and a half, obſerving to water them till they have taken new root; after which they will only require the common care of being kept clear from weeds.

Meadow RUE. *Thaliƈtrum*, a genus of plants ranged by Linnæus among the *polyandria polyginia*, and of which there are eleven ſpecies. 1. Meadow Rue with a furrowed leafy ſtalk, and many erect panicles of flowers. 2. Meadow Rue with an angular ſtalk, narrow leaves ending in two or three points, and many erect panicles of flowers. 3. Meadow Rue with a pendulous triangular fruit, and a taper ſtalk. 4. Meadow Rue with a furrowed leafy ſtalk, and linear, fleſhy leaves. 5. Meadow Rue with flowers having five petals, and a fibrous root. 6. Meadow Rue with flowers having five petals, and a tuberous root. 7. Meadow Rue with leaves cut into ſix ſegments, and pendulous flowers. 8. Meadow Rue with a very branching, paniculated, leafy ſtalk. 9. Meadow Rue with male and female flowers upon different plants. 10. Meadow Rue with ſpear-ſhaped, linear leaves, which are entire. 11. Meadow Rue with a ſingle ſtalk, which is almoſt naked, and terminated by a ſingle bunch of flowers.

The firſt and ſeventh ſpecies are natives of England. The ſecond, fourth, and eighth of France. The third and eleventh ſorts grow naturally on the Alps. The fifth and ninth in North America. The ſixth in Spain; and the tenth in Italy and ſome parts of Germany.

Culture of the Meadow RUE.

The third, fifth, and ſixth ſpecies are the only ones worth cultivating in gardens. They are propagated by parting their roots in autumn, when their leaves begin to decay: they ſhould have a freſh, light ſoil, and a ſhady ſituation, where the plants will come up without any trouble.

Wild Syrian RUE, *Peganum*, a genus of plants ranged by Linnæus among the *dodecandria monogynia*, and of which there are only two ſpecies. 1. Wild Syrian Rue, with many pointed leaves. 2. Wild Syrian Rue, with undivided leaves.

The firſt ſpecies is a native of Syria, and the ſecond of Siberia.

Culture of the Wild Syrian RUE.

Theſe plants are propagated by ſeeds, which ſhould be ſown in April upon a bed of light earth. When the ſtalks are decayed the beds ſhould be covered with tanners-bark, aſhes, or ſaw-duſt, to preſerve the young roots from froſt. In March following they may be taken up and tranſplanted into a warm ſituation and a dry ſoil, where they will continue ſeveral years.

RUELLIA, a genus of plants which has no Engliſh name; there are four ſpecies of it. 1. Ruellia, with oval, crenated leaves, and foot-ſtalks bearing two flowers. 2. Ruellia, with leaves having foot-ſtalks, and flowers growing in whorls ſitting cloſe to the ſtalks. 3. Ruellia, with leaves having foot-ſtalks, and long naked foot-ſtalks to the flowers. 4. Ruellia, with oval, ſpear-ſhaped leaves, which are ſomewhat crenated, oval pods, and prickly, hairy, ſmall leaves.

The firſt and third ſpecies are natives of the Weſt-Indies. The ſecond ſort grows naturally in Carolina; and the fourth in both Indies.

Culture of the RUELLIA.

Theſe plants are all propagated by ſeeds, which in ſpring muſt be ſown in pots, and plunged into a moderate hot-bed. When the plants come up they muſt be tranſplanted each into a ſeparate ſmall pot, and placed in a freſh hot-bed of tanners-bark, where they muſt be ſhaded from the ſun till they have taken new root, after which they ſhould have free air admitted to them every day when the weather is warm. In July they will flower, and perfect their ſeeds in Auguſt.

RUSCUS, a genus of plants of which there are eight ſpecies. 1. Ruſcus, with leaves which bear flowers on their upper ſide and are naked; commonly called Knee-holly or Butchers-broom. 2. Ruſcus, with leaves which bear flowers beneath and are naked. 3. Ruſcus, with flowers under the leaves. 4. Ruſcus, with hermaphrodite flowers; or Laurus Alexandrina. 5. Ruſcus, with oval, acute-pointed leaves, which are placed by threes, and flowers on their upper ſide. 6. Ruſcus, with acute-pointed leaves, bearing flowers on their upper ſide and flexible ſtalks. 7. Ruſcus, with flowers growing on the borders of the leaves. 8. Ruſcus, with a ſhrubby branching ſtalk, ſpear-ſhaped, ſtiff leaves, and flowers growing upon foot-ſtalks.

The firſt ſpecies grows wild in moſt parts of England, and is never admitted into gardens.

The other ſpecies are all natives of different parts of Europe.

Culture of the RUSCUS.

The ſecond, third, fourth, fifth, and ſixth ſpecies are propagated by parting of their roots in autumn, but they ſhould not be divided into very ſmall parts, which will prevent their growth for two or three years.

Theſe plants are very proper for planting round the verges of woods, or under large trees in wilderneſs quarters.

The ſeventh and eighth ſpecies are alſo propagated by parting of the roots, but they muſt be ſet in pots, that they may be removed into the green-houſe in winter, where they muſt always have free air in mild weather, and in ſummer be placed abroad with other hardy green-houſe plants.

Sweet RUSH. See the article Acorus.

RUYSCHIANA, a genus of plants of which there are three ſpecies. 1. Ruyſchiana, with ſpiked flowers, linear leaves, and bracteæ which are ſmooth and undivided. 2. Ruyſchiana, with ſpiked flowers, and hairy, linear, three-pointed leaves.

The firſt ſpecies grows naturally in Auſtria and Hungary. The ſecond in Siberia; and the third in Tartary.

Culture of the Ruyschiana.

Theſe plants are propagated by ſeeds, which muſt be ſown the latter end of March, on a bed of light earth in an open expoſure; when the plants come up they muſt be carefully weeded, and when they are about two inches high they ſhould be tranſplanted into a bed or border of light undunged earth, where they muſt be ſhaded from the ſun till they have taken root, after which they muſt be kept clean from weeds till Michaelmas, when they ſhould be carefully taken up with balls of earth to their roots, and planted among other hardy plants in the flower-garden, where they will make an agreeable variety.

S.

SAFFRON, *Crocus*. See the article Crocus.

Baſtard SAFFRON, or SAFFLOWER, *Carthamus*, a genus of plants ranged by Linnæus among the *ſyngeneſia polygamia æqualis*, and of which there are ſix ſpecies. 1. Baſtard Saffron, with oval, entire, ſawed, ſpiny leaves. 2. Baſtard Saffron, with a hairy ſtalk, woolly above, the under leaves pinnatified, and the upper ones embracing the ſtalks. 3. Baſtard Saffron, with ſpear-ſhaped leaves ſharply ſawed. 4. Baſtard Saffron, with unarmed leaves, the lower ones indented, and thoſe on the ſtalks winged. 5. Baſtard Saffron, with narrow-winged leaves on the ſtalks, of the length of the plant. 6. Baſtard Saffron, with ſword-ſhaped, ſinuated and indented leaves.

The firſt ſpecies is a native of Egypt. The ſecond, third, and fourth ſorts grow naturally in France, Italy, and Crete. The fifth in France; and the ſixth in Spain.

Culture of the Baſtard Saffron.

The firſt and ſecond ſpecies are propagated by ſeeds: thoſe of the firſt ſort muſt be ſown in April, and thoſe of the ſecond in autumn, upon a bed of light earth; they ſhould be ſcattered thinly in drills drawn at a foot and a half diſtance from each other. In a fortnight or three week after the plants appear, the ground ſhould be hoed to deſtroy the weeds, and the plants thinned where they grow too cloſe: ſoon after they muſt be hoed again, and the plants thinned to the diſtance of a foot from each other; after this they ſhould have a third hoeing, which if carefully performed in dry weather, the plants will require no further care till they come to flower.

When this plant is cultivated for the ſake of the florets, which are uſed in dying and painting, they ſhould be cut off from the flowers as they come to perfection: but this muſt be performed when they are perfectly dry, and then they ſhould be dried in a kiln, as the true ſaffron for uſe. But if the plants are cultivated for the ſeeds, which were formerly uſed in medicine, the flowers muſt not be gathered, but the ſeeds ſeldom come to perfection in this country.

The third and fourth ſpecies are propagated by parting the roots, which ſhould be done about the beginning of March; they require a dry ſoil and a warm ſituation.

The fifth ſpecies is very difficult to propagate in England, for the roots do not put out off-ſets, ſo that it can only be raiſed from ſeeds, which, unleſs the ſeaſon proves hot, never ſucceed here.

The ſixth ſpecies is propagated by ſide-ſhoots taken from the branches in ſpring, which muſt be planted in pots filled with light ſandy earth, and plunged into a moderate hot-bed, obſerving to ſhade them till they have taken root; after which they muſt be gradually hardened, and removed into the open air. When they have obtained ſtrength they ſhould be ſeparated, and ſome of them planted in a warm, dry border, where they will endure the cold of our ordinary winters.

Meadow SAFFRON, *Colchicum*, a genus of plants ranged by Linnæus among the *hexandria trigynia*, and of which there are three ſpecies. 1. Meadow Saffron, with plain, erect, ſpear-ſhaped leaves; or the common meadow Saffron. 2. Meadow Saffron, with very narrow ſpreading leaves. 3. Meadow Saffron, with waved, ſpreading leaves.

There are ſeveral varieties of this flower, all of which are ſuppoſed to have been obtained from the ſeeds of the firſt ſpecies.

The method of cultivating theſe plants is exactly the ſame as that of tulips: to which article we refer the reader.

SAGE, *Salvia*, a genus of plants ranged by Linnæus among the *diandria monogynia*, and of which there are twelve ſpecies. 1. Sage, with ſpear-ſhaped, oval, entire leaves. 2. Sage, with heart-ſhaped, lower leaves, the upper of which are oblong, oval, ſawed, and woolly. 3. Sage, with ſpear-ſhaped leaves; commonly called Sage of Virtue. 4. Sage, with linear, ſpear-ſhaped, woolly, entire leaves. 5. Sage, with the lower leaves winged, the upper ones trifoliate and rough. 6. Sage, with ſpear-ſhaped, oval, entire leaves, which are ſlightly crenated. 7. Sage, with compound, winged leaves. 8. Sage, with winged lower leaves, the upper ones ſingle and crenated. 9. Sage, with heart-ſhaped, blunt, crenated leaves, which are ſomewhat woolly. 10. Sage, with roundiſh, entire leaves, which are indented at their baſe. 11. Sage, with roundiſh, ſawed leaves, indented at their baſe. 12. Sage, with oblong, oval, entire leaves.

The firſt, ſecond, and third ſpecies are natives of the ſouthern parts of Europe: there are the following varieties of the firſt.

1. The common green Sage.
2. The green Sage with a variegated leaf.
3. The red Sage.
4. The red Sage with a variegated leaf.
5. The wormwood-Sage.

The fourth ſpecies is a native of Spain. The fifth and eighth ſorts grow naturally about Smyrna. The ſixth in Crete. The ſeventh in the Levant. The ninth at Mexico; and the tenth, eleventh, and twelfth ſpecies are natives of the Cape of Good Hope.

Culture of the Sage.

The firſt, ſecond, third, and fourth ſpecies are eaſily propagated by ſlips, which ſhould be planted the beginning of April on a ſhady border, and, if the ſeaſon proves dry, they muſt be frequently refreſhed with water. When they have made good roots they ſhould be taken up with balls of earth to them, and ſet where they are to remain, which ſhould always be upon a dry ſoil, and where they may have the benefit of the ſun.

The ſlips of the fifth, ſixth, and eighth ſpecies ſhould be planted in pots, which in winter muſt be placed under a hot-bed frame, and a great ſhare of freſh air admitted to them when the weather is mild. In ſummer they muſt be placed abroad in a ſheltered ſituation, and often refreſhed with water.

Theſe plants muſt be potted once, if not twice, every ſummer, for their roots increaſe very faſt, and if confined, they will turn mouldy and decay.

The ſeventh and ninth ſpecies are propagated by ſeeds, which ſhould be ſown upon a bed of light earth in the places where they are to remain: thoſe of the ſeventh ſort ſhould be ſown in autumn, and thoſe of the ninth the beginning of April. When the plants come up they only require to be thinned where they grow too cloſe, and kept clean from weeds. The plants of the ninth ſpecies will grow tall, ſo muſt be ſupported to prevent their being broke by the wind.

The tenth, eleventh, and twelfth ſpecies are propagated by ſeeds, which ſhould, if poſſible, be procured from the Cape of Good Hope: but if there is no opportunity for this, they may be had from France or Holland. Theſe ſhould be ſown in ſpring upon a moderate hot-bed; and at the ſame time the following compoſt muſt be prepared:

Take two barrows of pond-mud, one barrow of mellow cow-dung, and half a barrow of common earth from under the turf in a dry paſture: mix theſe well together, ſprinkle the whole with a little brine, and let it lie in a heap to mellow.

When the plants are come up water them at times very gently, and when they have got ſome ſtrength remove them into a ſecond, and afterwards into a third hot-bed. When the ſummer is advanced fill ſome large pots with the above compoſt, and ſet one plant in each, and when they are all planted give them a gentle watering: ſet the pots under a warm wall, and draw a mat over them at a height above the plants; keep them ſhaded, and water them frequently till they are well-rooted, and then ſet them in a warm and well-ſheltered part of the garden, among other exotics that bear expoſure: they muſt be frequently watered, and at the approach of winter removed into the green-houſe, where they muſt not be ſhut up too cloſe. The next ſummer they muſt be ſet out with the other exotics, and treated in all reſpects like them.

SAGE-TREE, or *Jeruſalem* SAGE, *Phlomis*, a genus of plants ranged by Linnæus among the *didynamia gymnoſpermia*, and of which there are twelve ſpecies. 1. Sage-tree, with roundiſh, woolly, crenated leaves. 2. Sage-tree, with ſpear-ſhaped involucra, and oval leaves, hairy on the under ſide. 3. Sage-tree, with the lower leaves heart-ſhaped, woolly, and hairy on every ſide. 4. Sage-tree, with ſpear-ſhaped, woolly leaves, thoſe under the flowers oval and briſtly, woolly involucra. 5. Sage-tree, with leaves alternately winged, the lobes of which are jagged, and with woolly cups. 6. Sage-tree, with oval leaves, woolly on the under ſide, and with the involucra divided into three parts. 7. Sage-tree, with briſtly, prickly involucra, oblong, oval, rough leaves, and an herbaceous ſtalk. 8. Sage-tree, with awl-ſhaped, prickly involucra, rough, heart-ſhaped leaves, and an herbaceous ſtalk. 9. Sage-tree, with ſomewhat ſawed leaves, flowers in heads terminating the branches, and cups cut into eight ſegments. 10. Sage-tree, with narrow involucra, cups with a ſingle, oblique lip, and ſpear-ſhaped, ovated, hairy leaves. 11. Sage-tree, with ovated leaves, and ten angled cups, cut into ſeven unequal ſegments. 12. Sage-tree, with ſpear-ſhaped, ſawed leaves, naked, narrow involucra, and ten angled cups cut into ten ſegments.

The firſt ſpecies is a native of Sicily and Spain. The ſecond of Portugal. The third of the Eaſt-Indies. The fourth ſort grows naturally in the ſouthern parts of Europe. The fifth and ſixth in the Levant. The ſeventh in Perſia and Tartary. The eighth in Siberia. The ninth and tenth in India. The eleventh in Surinam; and the twelfth at the Cape of Good Hope.

Culture of the SAGE-TREE.

The firſt, ſecond, third, fourth, ninth, tenth, eleventh, and twelfth ſpecies are ſhrubby plants, and propagated by cuttings, which ſhould be planted in April, in a bed of light earth, where they muſt be ſhaded with mats in the day, and have gentle waterings when the ground is dry. In about a month or ten weeks they will have taken good root, when they ſhould be carefully taken up and tranſplanted into a nurſery, where they may remain one year, and then be removed to the places where they are deſigned to ſtand, which ſhould be in a dry ſoil and a warm ſituation.

The fifth and ſixth ſpecies are propagated by off-ſets from the roots, which ſhould be planted in warm borders: and when the plants come up they may be treated like the other ſorts.

The ſeventh ſpecies is propagated by parting of the roots in autumn, when the ſtalks begin to decay, that they may get root again before the froſt comes on, but they ſhould not be parted oftener than every third year. This ſort is very hardy, ſo may be planted in any ſituation, except where the ſoil is moiſt.

The eighth ſpecies is propagated by ſeeds, which ſhould be ſown upon an eaſt border in the ſpring. When the plants come up let them be kept clear from weeds, and in autumn tranſplanted to the places in which they are deſigned to remain. They are very hardy, and will grow in almoſt any ſoil or ſituation.

Wild SAGE, a ſpecies of Tree Germander. See the article *Tree* GERMANDER.

Corn SALLAD, a ſpecies of Valerian. See VALERIAN.

SALLOW, or WILLOW. See the article WILLOW.

SALSAFY, a ſpecies of Goat's Beard. See the article *Goat's* BEARD.

SAMYDA, a genus of plants which has no Engliſh name; and there are only two ſpecies of it. 1. Samyda, with oval, ſawed leaves. 2. Samyda, with compound, winged leaves.

Theſe plants are natives of the Weſt-Indies, where they riſe with a ſhrubby ſtalk ſix feet high. The leaves of the firſt ſpecies are oval, ſawed on their edges, and of a light green. The flowers grow from the wings of the leaves upon ſhort foot-ſtalks, and their colour is a beautiful red.

The leaves of the ſecond ſpecies reſemble thoſe of the walnut tree, only ſmaller, and the flower is of a purple colour.

Culture of the SAMYDA.

Theſe plants are propagated by ſeeds, which muſt be procured from the country where they naturally grow, and ſown in the ſpring upon a hot-bed. When the plants are come up they ſhould be tranſplanted each into a ſeparate pot, and plunged into a hot-bed of tanners-bark, where they muſt be treated in the manner already directed for other tender plants from the ſame country, obſerving to keep them always in the bark-bed of the ſtove.

SANICLE, *Tiarella*, a genus of plants ranged by Linnæus among the *decandria digynia*, and of which there are only two ſpecies. 1. Sanicle, with heart-ſhaped leaves. 2. Sanicle, with trifoliate leaves.

The firſt ſpecies is a native of the north parts of Aſia and America; and the ſecond grows naturally in the north of Aſia.

Culture of the SANICLE.

Theſe plants are propagated by parting of the roots, which ſhould be done in autumn. They muſt have a moiſt ſoil and a ſhady ſituation, and only require to be kept clear from weeds.

Bear's-ear SANICLE. See the article CORTUSA.

SAP, a juice furniſhed by the earth, and changed into the plant, conſiſting of foſſil, ſaline, aerial, and other particles from putrified animals, vegetables, &c.

The notion of the Sap's circulation was entertained by ſeveral authors much about the ſame time, without any communication from one another; particularly M. Major, a phyſician of Hamburgh, M. Perrault, Mariotte, and Magpighi. It has met, however, with ſome conſiderable oppoſers, particularly the excellent M. Dodart, who could never be reconciled to it.

One of the great arguments for it is, that the ſame experiments of ligature and inciſion, which evince a circulation of the blood in animals, ſucceed in the like manner in plants, particularly in ſuch as abound with a milky ſap, as the great tithymale, milk-thiſtle, &c. if the ligature be faſtened tight round them, the part above is found to ſwell very conſiderably, and that below it, a little: whence it appears, that there is a juice aſcending from the branches; and that the latter is thicker than the former, which quadrates exactly with the common ſyſtem; the juice being ſuppoſed to riſe in capillary veſſels, in form of a ſubtile vapour, which, condenſed in the extremes of the plant, by the neighbourhood of the cold air, turns back in form of a liquor, through the more patent pipes of the inner bark.

M. Dodart, inſtead of the ſame juices going and returning, contends for two ſeveral juices; the one imbibed from the ſoil digeſted in the root, and from thence tranſmitted to the extremes of the branches, for the nouriſhing of the plant; the other received from the moiſture of the air entering in at the extremities of the branches: ſo that the aſcending and deſcending juices are not the ſame.

One of his chief arguments is, that if two trees of the ſame kind be tranſplanted in one day, after firſt cutting off their roots and branches, and if, after they have taken root again, ſome of the new ſhoots put forth each year be cut off one of them, it will not thrive half ſo well, notwithſtanding its root and trunk being intire as the other.

This he conceives to be a proof of the plants deriving nouriſhment by the branches, and concludes it to be of an aerial nature, becauſe formed of the moiſture of the air, dew, &c. whereas that imbibed from ſoil is terreſtrial, &c. *Hiſt. de l'Acad. Roy. Ann.* 1709.

The humour or Sap of a plant, then, is a juice furniſhed by the earth, and changed into the plant, conſiſting of ſome foſſil parts, other parts derived from the air and rain, and others from putrified animals, plants, &c. Conſequently, in vegetables, are contained all kinds of ſalts, oil, water, earth, &c. and, probably, all kinds of metals too, inaſmuch as the aſhes of vegetables always yield ſomewhat which the loadſtone attracts.

This juice enters the plant in form of a fine and ſubtile water; which the nearer it is to the root, the more it retains of its proper nature; and, the farther from the root, the more action it has ſuſtained, and the nearer it approaches to the nature of the vegetable.

Conſequently, when the juice enters the root, the bark whereof is furniſhed with excretory veſſels, fitted to diſcharge the excrementitious part, it is earthy, watery, poor, acid, and ſcarce oleaginous at all.

In the trunk and branches it is further prepared, though it ſtill continues acid; as we ſee by tapping or perforating of a tree in the month of February, when it diſtills a watery juice apparently acid.

The juice being here carried to the germs or buds is more concocted; and here, having unfolded the leaves, theſe come to ſerve as lungs for the circulation and further preparation of the juice.

For theſe tender leaves, being expoſed to the alternate action of heat and cold, moiſt nights, and hot ſcorching days, are alternately expanded and contracted, and the more on account of their reticular texture.

By ſuch means is the juice ſtill further altered and digeſted, as it is further in the petala or leaves of the flowers which tranſmit the juice, now brought to a further ſubtility, to the ſtamina: theſe communicate it to the farina or duſt in the apices, which is, as it were, the male ſeed of the plant, where having undergone a further maturation, it is ſhed into the piſtil, which performs the office of an uterus or womb; and thus, having acquired its laſt perfection, it gives riſe to a new fruit or plant.

The root or part whereby vegetables are connected to their matrix, and by which they receive their nutritious juice, conſiſts of an infinite number of vaſa abſorbentia, which, being diſperſed through the interſtices of the earth, attract or imbibe the juices of the ſame: conſequently, every thing in the earth that is diſſoluble in water, is liable to be imbibed; as air, ſalt, oil, fumes of minerals, metals, &c. and of theſe do plants really conſiſt.

Theſe juices are drawn from the earth very crude; but by the ſtructure and fabric of the plant, and the various veſſels they are ſtrained through, become changed, further elaborated, ſecreted, and aſſimilated to the ſubſtance of the plant.

The motion of the nutritious juices of vegetables is produced, much like that of the blood in animals, by the action of the air; in effect, there is ſomething equivalent to reſpiration throughout the whole plant.

The diſcovery of this is owing to the admirable Malpighi, who firſt obſerved, that vegetables conſiſt of two ſeries or orders of veſſels.

Firſt, ſuch as receive and convey the alimental juices, anſwering to the lacteals, veins, &c. of animals.

Secondly, tracheæ or air veſſels, which are long, hollow pipes, wherein air is continually received and expelled, i. e. inſpired and expired; within which tracheæ he ſhews all the former ſeries of veſſels are contained.

Hence, it follows, that the heat of a year, nay, of a day, of a ſingle hour, or minute, muſt have an effect on the air included in theſe tracheæ, i. e. muſt rarefy it, and conſequently dilate the tracheæ; whence ariſes a perpetual ſpring or ſource of action, to promote the circulation in plants.

For, by the expanſion of the tracheæ, the veſſels containing the juices are preſſed, and by that means the juice contained is continually propelled, and ſo accelerated; by which propulſion, the juice is continually comminuted, and rendered more and more ſubtile, and ſo enabled to enter veſſels ſtill finer and finer, the thickeſt part of it being at the ſame time ſecreted, and depoſited into the lateral cells or loculi of the bark, to defend the plant from cold, and other external injuries.

The juice having thus gone its ſtage, from the root to the remote branches, and even the flower; and having in every part of its progreſs depoſited ſomething both for aliment and defence; what is redundant paſſes out into the bark, the veſſels whereof are inoſculated with thoſe wherein the ſap mounted; and through theſe it redeſcends to the root, and thence to the earth again: and thus a circulation is effected.

Thus is every vegetable acted on by heat and cold, during the day-time eſpecially, while the ſun's force is conſiderable, the ſap-veſſels ſqueezed and preſſed, and the ſap protruded and raiſed, and at length evacuated, and the veſſels exhauſted; and, in the night again, the ſame tracheæ being contracted by the cold of the air, the other veſſels are eaſed and relaxed, and ſo diſpoſed to receive freſh food for the next day's digeſtion and excretion.

What courſe the juice takes, after it is imbibed by the roots, is not very clear; the veſſels that take it up, to convey it to the plant, are too fine to be traced; and hence it has been controverted, whether it is by the bark, or the pith, or the woody part, that the plant is fed.

The more common opinion is for the bark: the juice, raiſed by the capillaries of the wood, is here ſuppoſed to deſcend by the larger fibres, placed in the inmoſt part thereof, immediately over the wood; in which deſcent, the ſap, now ſufficiently prepared, adds a part of its ſubſtance to the contiguous wood, and thus increaſes by appoſition: and hence it may be, that hollow, carious, or rotten trees, which have neither pith nor wood, except juſt enough to ſuſtain the bark, do grow and bear. Some contend for the wood, which they obſerve to conſiſt of ſlender capillary tubes running parallel to each other from the root up to the trunk, being proper to receive in a fine vapour; in the aſcent whereof the fibres become opened, and their ſubſtance increaſed; and thus the trunks of trees are ſaid to increaſe in their circumference.

As for the pith; as the woody ſubſtance of the trunk becomes more woody, the pith is compreſſed and ſtreightened to ſuch a degree that in ſome trees it quite diſappears: whence it ſeems, that its office in vegetation is not very important, ſince its uſe is not perpetual. By its ſpongious ſubſtance, it ſhould ſeem fitted to receive any ſuperfluous moiſture tranſuding through the pores of the woody fibres: and, if by the exceſs of ſuch moiſture, or the like cauſe, it corrupt and rot, as it frequently happens in elms, the tree does not grow the worſe for it; which is a convincing proof it is of no great uſe.

The learned Dr. Boerhaave diſtributes the juices of plants into ſix claſſes.

Firſt, the firſt claſs comprehends the crude nutritious juice, or the juices of the root and ſtem of plants, which are little more than the mere matter of the element, as drawn by the root from the body it adheres to, whether it be earth, water, or the like.

This juice is found in every part of the plant, and therefore may be held an univerſal juice; yet he conſiders it as the juice of the root and ſtem, becauſe it is chiefly found in them.

This he takes to be a ſubacid watery lymph, without any ſpecific taſte or ſmell, as not being yet arrived to the maturity of oilineſs.

To this claſs belong thoſe juices which diſtil in great abundance from wounds or inciſions made in the woody parts of plants; ſuch, for inſtance, is that tart liquor ouſing from the root of the walnut-tree, when cut off in the month of May.

Such alſo is that limpid, ſubacid humour, flowing out very plentifully at an inciſion in the birch-tree in the month of March, to the quantity of ſeveral gallons in a few days.

Such alſo is the juice iſſuing out of the vine wounded in the ſpring-time, which always taſtes tartiſh, and ferments like the grapes themſelves.

This juice may be eſteemed as yet foſſil, being generated of and in the earth; for the juice of the earth, being received into the canals of this plant, retains its nature during two or three circulations; nor does immediately commence a vegetable juice.

This claſs of juices therefore he accounts as the chyle of the plant, being chiefly found in the firſt order of veſſels, viz. in the roots and the body of the plant, which anſwers to the ſtomach and inteſtines of animals.

Secondly, the ſecond claſs of the juices is that of the leaves, which are the real lungs of plants, and accordingly make a further change of the juice, which they receive from the roots and ſtem by force of the air. The juice of leaves is different therefore from the firſt juice, as being more ſulphureous, and farther elaborated; not that it derives any ſulphur from the ſun, but that, its watery part exhaling, it becomes more oily, and leſs volatile.

The juice of leaves he diſtinguiſhes into three kinds:

The firſt is the nutritious juice of the leaves; which is that already deſcribed, only further elaborated in the minute veſiculæ of the leaves, and conſequently leſs watery, and more oily and ſaccharine.

The ſecond is wax, which, exuding out of the leaves, adheres to the ſurface, and is ſcraped off by bees with their rough thighs, to build their combs withal. This is chiefly afforded by lavender and roſemary: upon the latter of which, the wax may be plainly perceived ſticking to the leaves of it.

The third is manna: not that with which the Iſraelites were fed in the deſart, but a drug ſold among us: it is an eſſential ſaccharine ſalt, exuding chiefly by night, and, in the ſummer-ſeaſon, from the leaves of a ſort of aſh growing in Calabria and Sicily, and adhering thereto in the form of a cruſt, to be gathered the next morning before the ſun is up.

The like ſubſtance is found to exude from the leaves of the linden-tree and poplar, in the heats of May and June; at which time they have an honey-taſte, and are even ſeen with a fatty juice on them, which, at the approach of the cold evening, gathers into grains.

Thirdly, the third claſs of juices are thoſe of flowers, or the genital parts of plants; in theſe are:

Firſt, a pure, elaborated, volatile oil or ſpirit, wherein the particular ſmell of the plant or flower reſides, and which, by reaſon of its extreme volatility, exhales ſpontaneouſly; inſomuch that, if the flower be laid for ſome time in a warm place, the odorous juice or ſpirit will be all fled.

The ſecond is the juice expreſſed from the flower, which in reality is the ſame with that of the root and leaves, only farther prepared; it is thicker than the former, and has ſcarce any ſmell at all: thus, if you bruiſe an hyacinth, or other fragrant flower, and expreſs the juice, it will be found altogether inodorous.

The third is the ſweet juice called honey, which exudes from all flowers; aloes, colocynthis, and other bitter flowers, not excepted.

In all male flowers, that have utricles at the bottom of the petala, which Dr. Linnæus ſtiles the nectarium, is found a viſcid, ruddy, ſweet juice in ſome plenty; and accordingly we ſee the children gather cowſlips, foxgloves, honeyſuckles, &c. and ſuck the honey from them: the bees too viſit theſe flowers, and, putting in their proboſcides or trunks, ſuck out the honey, and load their ſtomachs therewith, to be afterwards diſcharged and laid up in their combs: ſo that honey is a vegetable juice.

Fourthly, the fourth claſs of juices are thoſe of the fruit and ſeed; the preparative whereof is nature's final work: which performed, the plants ſeem to die for a time, as all animals are ſeen to languiſh after the emiſſion of their ſemen.

The juice of the fruit is like that of the root, only farther elaborated.

The juice of the ſeed is an eſſential oil or balm, elaborated and exalted to its laſt perfection. This juice or oil is not found in the very point or embryo in the center of the placenta; all we meet with in that part, is a few fine watery particles ſecreted from the placenta: but it is in the placentula or cotyledons themſelves, which conſiſt of innumerable little folliculi or cells, wherein this only juice is contained, ſerving to defend the embryo, and preſerve it from being corrupted by water, which, it is well known, will hardly paſs through oil.

Thus, if you take, for inſtance, fennel-ſeed, cut it through the middle, and apply it to the microſcope, you will eaſily perceive a clear ſhining oil in the cells of each lobe, inveſting the tender embryo. Without this oil, it were impoſſible a ſeed ſhould live a month, and much leſs, a year or two, intire and uncorrupted in the ground.

This oil is found in the ſeeds of all plants; in ſome, for inſtance, in almonds, cocoa-nuts, &c. in very great quantities; in others leſs, as pepper, arum, &c. where one would ſcarce imagine any oil at all: and theſe ſeeds loſe their vegetative quality very ſoon.

Fifthly, the fifth claſs of juices are thoſe of the bark; which is an artful congeries or bundle of perſpirative ducts, and abſorbent veſſels.

Of theſe juices there are divers ſpecies; for the ſeveral humours raiſed and diſtributed through the leaves, flowers, and other parts of the plants, have all circulated through the bark, and accordingly are frequently found to diſtil from wounds made therein. In ſome caſes, even the whole plant is no more than bark, the pulp having been eaten out; as in willows, poplars, &c. which will live a long time in that ſtate.

The bark ſerves divers purpoſes; for it not only tranſmits the nutritious juices of the plants, but alſo contains divers fat oily humours, to defend the fleſhy parts from the injuries of the weather.

Sixthly, as animals are furniſhed with a panniculus adipoſus, uſually replete with fat, which inveſts and covers all the fleſhy parts, and ſcreens them from external cold; ſo are plants incompaſſed with a bark replete with fat juices, by the means whereof the cold is kept out, and in winter-time the ſpiculæ of ice prevented from fixing and freezing the juices in their veſſels; whence it is that ſome ſorts of trees remain ever-green the year round, by reaſon their barks have more oil than can be ſpent and exhaled by the ſun; and their leaves are covered with a thick oily film over their ſurface, which prevents their perſpiring, ſo much as other plants, and alſo defends them from the cold, &c.

All the juices of barks are reducible to eight, viz.

Firſt, the crude, acid, watery juice, called the chyle of the plant.

Secondly, an oily juice, which, burſting the bark in the beginning of the ſummer, exudes out of ſeveral plants; as cypreſs, pine, fir, ſavin, juniper, and other ever-greens; and ſuch alone: this oil diſſolves by the ſmalleſt degree of warmth, and is eaſily inflamed, and is that which defends the plant; which is the reaſon why moſt of theſe plants will not thrive in very hot climates.

For balm, or fatty liquor, more glutinous than oil, is nothing but the laſt-mentioned oily juice, which was more fluid during the ſpring-time; but which, by the greater heat of the ſun, has evaporated all its moſt ſubtile parts, and is converted into a denſer liquor. Thus the finer part of oil of olives being exhaled by the ſummer's warmth, there remains a thick balſam behind: thus alſo oil of turpentine, having loſt its more liquid parts by heat, becomes of the thick conſiſtence of a balm.

Thirdly, a pitchy juice, which is the body of the oil itſelf, inſpiſſates, and turns black, when put in a great warmth: this is the moſt obſerved in the pine and fir.

Fourthly, reſin, which is an oil ſo far inſpiſſated, as to become friable in the cold, and may be procured from any oil, by boiling it much and long. Thus, if turpentine be ſet over a gentle fire, it firſt diſſolves, and becomes an oil, then a balſam, then pitch, and then a reſin; in which ſtate it is friable in the cold, fuſible by fire, and withal inflammable and combuſtible; diſſoluble in ſpirit of wine, but not in water, which makes the character of reſin.

Hence the oil is moſt abundant in the barks in the winter time, the balſams in ſummer, and the reſin in autumn.

Fifthly, colophony, which is a reſin ſtill farther exhauſted of its volatile part, being pellucid, friable, and approaching to the nature of glaſs.

Sixthly, gum, which is an humour exuding out of the bark, and, by the warmth of the ſun, concocted, inſpiſſated, and rendered tenacious, but ſtill diſſoluble in water and at the ſame time inflammable, and ſcarce capable of being pulveriſed. This oily mucilage ſerves as a pigment to cover over, and defend the buds of trees, from the injuries of wet and froſt in winter; but will melt with a moiſt warmth, and eaſily run from them, when the gentle warmth of the ſpring approaches: nor is ever ſo far hardened into a cruſt, as to do any injury to the incloſed ſhoot. This oily ſubſtance always contains in it an acid ſpirit; which is a preſervative againſt putrefaction.

Seventhly, a gummous reſin; which is an humour ſecreted in the bark, and dried by the heat of the ſun; and thus conſtituting a body that is partly gummous, and, as ſuch, tenacious, and ſoluble in water; and partly reſinous, and therefore friable, and ſoluble in oil, or ſpirit of wine, but not in water.

Botaniſts are now generally agreed, that all plants are furniſhed with organs and parts neceſſary both for chylification and ſanguification; that they have veins, arteries, heart, lungs, adipoſe, cellules, &c. If ſo, it is obvious, that there muſt be ſome difference between the juices, which have not undergone the action of thoſe parts, and ſuch as have already circulated a number of times.

The ſeveral juices, hitherto recounted, are the firſt or nutritious juice, called alſo the chyle of the plant, under ſuch alterations, and new modifications, as it undergoes in being received, and kept ſome time, in parts of a peculiar ſtructure; as leaves, flowers, ſeed, &c. This laſt juice, called the blood, is the ſame nutritious juice farther altered, by being divers times paſſed through each of thoſe parts, and remixed, and at length converted into a new juice, with properties different from any of them all.

To prove the circulation of the ſap, inſtances are brought from experiments made by Mr. Fairchild; as, his budding or inoculating of a paſſion-tree, whoſe leaves are ſpotted with yellow, into one of that ſort of paſſion-tree whoſe leaves are plain: for though, the buds did not take, yet, after it had been budded a fortnight, the yellow ſpots began to ſhew themſelves about three feet above the inoculation; and, in a little time after that, the yellow ſpots appeared on a ſhoot, which came out of the ground from another part of the plant; which has been accounted a plain proof of the ſap's circulation.

Another inſtance is, a ſecond experiment of the ſame perſon, who grafted the ever-green oak, or ilex, upon the common oak. The leaves of the common oak, which was the ſtock, decayed, and fell off, at the uſual ſeaſon of the year; but the ever-green oak, which was the cyon grafted upon it, held its leaves, and continued ſhooting in the winter. From whence it is concluded, that, when trees drop their leaves, the ſap keeps ſull in motion, and is not gone into the root, as ſome perſons think.

There are alſo other experiments of the ſame perſon, which were ſhewn before the Royal Society; as the New-England cedar, or rather juniper, grafted on the Virginian: and what is taken to prove the circulation in it, is, the branch which was grafted was left ſeveral inches below the grafting; which continued growing as well as the upper-part above the grafting.

And alſo another, which is the viburnum, with the top planted in the ground, which was become roots; and the roots turned up, which were become branches: which plant was in as good a ſtate of growing, as it was in its natural ſtate.

A third experiment of his was on a pear-tree, which he inarched upon two pear-ſtocks, in March 1721-2, having the roots out of the ground; and was in a good flouriſhing ſtate, with a branch in bloſſom, that receives no other nouriſhment but by the juices that return down the other two branches; which, though it had been done above two years, yet it continued ſhooting ſuckers out of the root; which is eſteemed as a proof, that the branches are as uſeful to ſupport the roots, as the roots the branches: and thence he infers, that it is not ſtrange, that ſo many trees miſcarry in planting, when there are no branches left to the head to maintain the circulation to the roots.

A fourth experiment he made on the cedar of Lebanon, grafted on the larix, which dropped its leaves in the winter, yet maintained the cedar in a flouriſhing condition, as if it had been on a tree which held its leaves all the winter; and the circulation of juices ſupported the graft below the grafting, and kept it in as good health as above the grafting.

In oppoſition to the notion of the circulation of the ſap in trees like to that in animal bodies, the Rev. Dr. Hales, in his excellent treatiſe on Vegetable Statics, preſents us with various experiments; and ſays:

When the ſap has firſt paſſed through that thick and fine ſtrainer, the bark of the root, we then find it in greateſt quantities in the moſt lax part, between the bark and wood, and that the ſame through the whole tree.

And, if, early in the ſpring, the oak, and ſeveral other trees, were to be examined near the top and bottom, when the ſap firſt begins to move, ſo as to make the bark run, and eaſily peel off, he believes it would be found, that the low bark is firſt moiſtened; whereas the bark of the top branches ought firſt to be moiſtened, if the ſap deſcends by the bark. As to the vine, he ſays, he is pretty well aſſured, that the lower bark is firſt moiſtened.

He adds, that it is to be ſeen in many of the examples of the experiments he has given in that book, what quantities of moiſture trees daily imbibe and perſpire: now the celerity of the ſap muſt be very great, if that quantity of moiſture muſt moſt of it aſcend to the top of the tree, then deſcend, and aſcend again, before it is carried off by perſpiration.

The defect of a circulation in vegetables ſeems, in ſome meaſure, to be ſupplied by the much greater quantity of liquor, which the vegetable takes in, than the animal, whereby its motion is accelerated: for, by the firſt example he gives, we find the ſunflower, bulk for bulk, imbibes and perſpires ſeventeen times more freſh liquor than a man every twenty-four hours.

Beſides, nature's great aim in vegetables being only, that the vegetable life be carried on and maintained, there was no occaſion to give its ſap the rapid motion which was neceſſary for the blood of animals.

In animals, it is the heart which ſets the blood in motion, and makes it continually circulate: but in vegetables we can diſcover no other cauſe of the ſap's motion, but the ſtrong attraction of the capillary ſap-veſſels, aſſiſted by the briſk undulation and vibration cauſed by the ſun's warmth; whereby the ſap is carried up to the top of the talleſt trees, and is there perſpired off through the leaves: but, when the ſurface of the tree is greatly diminiſhed by the loſs of its leaves, then alſo the perſpiration and motion of the ſap are proportionably diminiſhed; as is plain from many of his experiments.

So that the aſcending velocity of the ſap is principally accelerated by the plentiful perſpiration of the leaves, thereby making room for the fine capillary veſſels to exert their vaſtly attracting power; which perſpiration is effected by the briſk rarefying vibrations of warmth; a power that does not ſeem to be any-ways well adapted to make the ſap deſcend from the tops of vegetables, by different veſſels, to the root.

If the ſap circulated, it muſt needs have been ſeen deſcending from the upper part of large gaſhes, cut in branches ſet in water, and with columns of water preſſing on their bottoms in long glaſs tubes, in his forty-third and forty-fourth experiments. In both which caſes it is certain, that great quantities of water paſſed through the ſtem; ſo that it muſt needs have been ſeen deſcending, if the return of the ſap downwards were by truſion or pulſion, whereby the blood in animals is returned through the veins to the heart; and that pulſion, if there were any, muſt neceſſarily be exerted with prodigious force, to be able to drive the ſap through the finer capillaries.

So that, if there be a return of the ſap downwards, it muſt be by attraction, and that a very powerful one, as may be ſeen by many of theſe experiments, and particularly by experiment the eleventh. But it is hard to conceive what and where that power is, which can be equivalent to that proviſion nature has made for the aſcent of the ſap, in conſequence of the great perſpiration of the leaves.

The inſtances of the jaſmine-tree, and of the paſſion-tree, have been looked upon as proofs of the circulation of the ſap; becauſe their branches which were far below the inoculated bud, were gilded. But we have many viſible proofs in the vine, and other bleeding trees, of the ſap's receding back, and puſhing forwards alternately, at different times in the day and night; and there is great reaſon to think, that the ſap of all other trees has ſuch an alternate receding and progreſſive motion, occaſioned by the alternacies of day and night, warm and cold, moiſt and dry.

For the ſap in all vegetables does probably recede, in ſome meaſure, from the tops of branches, as the ſun leaves them; becauſe, its rarefying power then ceaſing, the greatly rarefied ſap and air mixed with it will condenſe, and take up leſs room than they did, and the dew and rain will then be ſtrongly imbibed by the leaves, as is probable from the forty-ſecond experiment, and ſeveral others; whereby the body and branches of the vegetable, which have been much exhauſted by the great evaporation of the day, may, at night, imbibe ſap and dew from the leaves.

For, by ſeveral experiments in the firſt chapter of the book of Vegetable Statics, plants were found to increaſe conſiderably in weight in dewy and moiſt nights.

And by other experiments on the vine, in the third chapter, it was found, that the trunk and branches of vines were always in an imbibing ſtate, cauſed by the great perſpiration of the leaves, except in the bleeding ſeaſon; but, when at night the perſpiring power ceaſes, then the contrary imbibing power will prevail, and draw the ſap and dew from the leaves, as well as moiſture from the roots.

And we have a further proof of this in the twelfth experiment, where, by fixing mercurial gauges to the ſtems of ſeveral trees which do not bleed, it is found that they are always in a ſtrongly imbibing ſtate, by drawing up the mercury ſeveral inches; whence it is eaſy to conceive, how ſome of the particles of the gilded bud in the inoculated jaſmine may be abſorbed by it, and thereby communicate their gilding miaſma to the ſap of the other branches; eſpecially when, ſome months after the inoculation, the ſtock of the inoculated jaſmine is cut off a little above the bud, whereby the ſtock, which was the counter-acting part of the ſtem, being taken away, the ſtem attracts more vigorouſly from the bud.

Another argument for the circulation of the ſap is, that ſome ſorts of grafts will infect and canker the ſtocks they are grafted on; but by the twelfth and thirty-ſeventh experiments, where mercurial gauges were fixed to freſh-cut ſtems of trees, it is evident, that thoſe ſtems were in a ſtrongly imbibing ſtate; and, conſequently, the cankered ſtock might very likely draw ſap from the graft, as well as the graft alternately from the ſtock; juſt in the ſame manner as leaves and branches do from each other in the viciſſitudes of day and night.

And this imbibing power of the ſtock is ſo great, where only ſome of the branches of the ſtock will, by their ſtrong attraction, ſtarve thoſe grafts; for which reaſon, it is uſual to cut off the greateſt part of the branches of the ſtock, leaving only a few ſmall ones to draw up the ſap.

The inſtance of the ilex grafted upon the Engliſh oak ſeems to afford a very conſiderable argument againſt a circulation, for, if there were a free uniform circulation of the ſap through the oak and ilex, why ſhould the leaves of the oak fall in winter, and not thoſe of the ilex?

Another argument againſt an uniform circulation of the ſap in trees, as in animals, may be drawn from Dr. Hale's thirty-ſeventh experiment; viz. where it was found, by three mercurial gauges, fixed to the ſame vine, that, while ſome of its branches change their ſtate of protruding ſap into a ſtate of imbibing, others continued protruding ſap, one nine, and the other thirteen days longer.

That the ſap does not deſcend between the bark and the wood, as the favourers of a circulation ſuppoſe, ſeems evident from hence, viz. that, if the bark be taken off for three or four inches breadth quite round, the bleeding of the tree above that bared place will much abate; which ought to have the contrary effect, by intercepting the courſe of the refluent ſap, if the ſap deſcended by the bark.

But the reaſon of the abatement of the bleeding, in this caſe, may be well accounted for, from the manifeſt proof we have in theſe experiments, that the ſap is ſtrongly attracted upwards by the various operation of the perſpiring leaves and attracting capillaries; but, when the bark is cut off for ſome breadth below the bleeding-place, then the ſap which is between the bark and the wood below that diſbarked place is deprived of the ſtrong attracting power of the leaves, &c. and conſequently the bleeding wound cannot be ſupplied ſo faſt with ſap, as it was before the bark was taken off.

But the moſt conſiderable objection againſt this progreſſive motion of the ſap, without a circulation, ariſes from hence, viz. that it is too precipitate a courſe for a due digeſtion of the ſap, in order to nutrition: whereas in animals nature has provided that many parts of the blood ſhall run a long courſe before they are either applied to nutrition, or diſcharged from the animal.

But when we conſider that the great work of nutrition in vegetables, as well as animals (we mean after the nutriment is got into the veins and arteries of animals) is chiefly carried on in the fine capillary veſſels, where nature ſelects and combines, as ſhall beſt ſuit her different purpoſes, the ſeveral mutually attracting nutritious particles, which were hitherto kept disjoined by the motion of their fluid vehicle; we ſhall find, that nature has made an abundant proviſion for this work in the ſtructure of vegetables: all whoſe compoſition is made up of nothing elſe but innumerable fine capillary veſſels, and glandulous portions or veſicles.

Upon the whole, he thinks we have, from theſe experiments and obſervations, ſufficient ground to believe, that there is no circulation of the ſap in vegetables; notwithſtanding many ingenious perſons have been induced to think there was, from ſeveral curious obſervations and experiments, which evidently prove, that the ſap does, in ſome meaſure, recede from the top, towards the lower part of plants; whence they were, with good probability of reaſon, induced to think, that the ſap circulated.

SAPOTA, a genus of plants of which there are only two ſpecies. 1. Sapota with oval leaves. 2. Sapota with ſpear-ſhaped leaves.

The firſt ſpecies is a native of the Spaniſh Weſt Indies, and the ſecond of Jamaica, and moſt of the Weſt India iſlands.

Culture of the SAPOTA.

Both theſe ſpecies are propagated by planting the ſtones, which ſhould be done as ſoon as they are taken out of the fruit, and the plants remain in their own country till they are about a foot high; after which they ſhould be brought over here in the ſummer ſeaſon. During their paſſage, while they are in a warm climate, they muſt have ſome water; but when they come into a colder, they ſhould have very little moiſture, and great care muſt be taken to ſecure them from ſalt water.

When they arrive in England, they ſhould be carefully taken out of the tubs, with balls of earth to their roots, and planted into pots, and then plunged into a moderate hot-bed of tanners bark, where they muſt be ſhaded from the ſun till they have taken new root, and at firſt ſparingly watered; but when they are well rooted, they muſt often be refreſhed with water in hot weather, and have a great ſhare of air admitted to them. If their leaves ſhould get foul, and be infeſted with inſects, which is often the caſe, they muſt be waſhed with a ſponge, without which the plants will not thrive.

As the plants grow, they muſt be ſhifted into larger pots, but great care muſt be taken not to over-pot them, which would certainly deſtroy them. In winter they muſt be placed in the warmeſt part of the ſtove, and be allowed very little water.

SASSAFRAS, a ſpecies of the Bay-tree. See the article BAY-TREE.

SATTIN-FLOWER. See the article *Sattin* FLOWER.

SAVIN, a ſpecies of Juniper. See JUNIPER.

SAVORY, *Satureja*, a genus of plants ranged by Linnæus among the *didynamia gymnoſpermia*, and of which there are nine ſpecies. 1. Savory with heads of flowers terminating the ſtalks, and ſpear-ſhaped leaves. 2. Savory with bunched whorls of flowers, and linear, ſpear-ſhaped leaves, or the true Savory. 3. Savory with whorled flowers, and oval, acute-pointed leaves. 4. Savory with woolly whorls of flowers, and the indentures of their cups briſtly and hairy, commonly called Maſtick Thyme. 5. Savory with corymbuſes of flowers upon foot-ſtalks, growing by pairs, from the wings of the leaves, and bracteæ ſhorter than the cups. 6. Savory with ſingle diverging ſtalks on the ſides of the branches, and ſharp-pointed leaves. 7. Savory with two flowers upon each foot-ſtalk, being the garden or ſummer Savory. 8. Savory with ſpiked flowers, and keel-ſhaped, hairy, ſpotted leaves. 9. Savory with oval, ſawed leaves, and flowers growing in a divided corymbus, terminating the ſtalks.

The firſt ſpecies is a native of Virginia. The ſecond, ſixth, and ſeventh ſorts grow naturally in Italy. The third, and eighth ſpecies, are natives of Crete. The fourth of Spain. The fifth of many parts of the Eaſt, and the ninth of North America.

Culture of the SAVORY.

The firſt, ſecond, third, fourth, and eighth ſpecies are propagated by ſlips or cuttings, planted during any of the ſummer months, on a ſhady border. In eight or nine weeks they will have put out roots, and then they ſhould be carefully tranſplanted, each into a ſmall pot filled with freſh undunged earth, and kept in the ſhade till they have taken new root; after which they ſhould be placed in a ſheltered ſituation, where they may remain till the end of October, at which time they muſt be put under a common hot-bed frame, and there protected from hard froſt, and expoſed to the open air, whenever the weather is mild.

The fifth ſpecies is propagated in the ſame manner, but being a tender plant, it requires more protection in winter.

The ſixth and ſeventh ſpecies are propagated by ſeeds, which ſhould be ſown about the beginning of April, upon a bed of light earth; and if the plants are not to be removed, the ſeeds ſhould be ſcattered thinly. When the plants appear, they muſt be kept clear from weeds, which is all the culture they require.

They may alſo be propagated by ſlips, planted in the ſpring.

The ninth ſpecies is never cultivated in England.

SAVOY *Spiderwort*, a ſpecies of Lily Aſphodel. See the article LILY *Aſphodel.*

SAW-WORT, *Serratula*, a genus of plants of which there are ten ſpecies. 1. Saw-wort with wing-pointed leaves, or common Saw-wort. 2. Saw-wort with oblong ſpear-ſhaped leaves, downy on their under ſide. 3. Saw-wort with oblong, oval, acute-pointed, ſawed leaves. 4. Saw-wort with linear leaves, and rough empalements. 5. Saw-wort with entire ſpear-ſhaped leaves, and rough empalements. 6. Saw-wort with linear leaves. 7. Saw-wort with ſtiff, ſpear-ſhaped leaves, ſharply ſawed. 8. Saw-wort with oblong, ſpear-ſhaped, intire leaves, hairy on their under-ſide. 9. Saw-wort with oblong, oval leaves, bluntly indented. 10. Saw-wort with oval empalements, a little hairy.

The firſt and laſt ſpecies are natives of England, and all the reſt of North America.

Culture of the SAW-WORT.

The firſt ſpecies is never admitted into gardens.

The ſecond, third, ſeventh, and eighth ſpecies are propagated by parting of their roots in autumn. When the plants come up, the only culture they require is to be kept clear from weeds, and to have the ground dug between them every ſpring. They ſhould not be removed or parted oftener than every third year.

The fourth, fifth, and ſixth ſpecies are propagated by ſeeds, which ſhould be procured from America, and ſown early in the ſpring on a border, fronting the eaſt. If the plants ſhould not appear the firſt ſummer, which often happens, the ground ſhould not be diſturbed, but kept clean from weeds till the following ſpring, when, if the ſeeds were good, the plants will appear. If they come up too cloſe, ſome of them ſhould be carefully drawn out while young, and planted in another border, at four inches diſtance. In autumn they muſt all be carefully tranſplanted to the places where they are deſigned to remain; which ſhould be in a light, loamy ſoil, not over wet.

SAXIFRAGE, *Saxifraga*, a genus of plants ranged by Linnæus among the *decandria digynia*, and of which there are no leſs than thirty-one ſpecies, which, as many of them grow wild in this country, and as thoſe admitted into gardens may all be propagated in the ſame manner, need not be deſcribed here.

Culture of the SAXIFRAGE.

All the ſpecies of Saxifrage uſually cultivated in gardens, may be propagated by off-ſets, which are ſent out from the old roots in great plenty. They may be taken off at any ſeaſon when the weather is mild, and, if they are planted in the full ground, they ſhould have a very dry ſoil, and a ſhady ſituation.

The beſt ſeaſon for tranſplanting them is in July, after their leaves are decayed, when they muſt be put into undunged earth, and placed in the ſhade till autumn; but in winter they may be expoſed to the ſun.

SCABIOUS, *Scabioſa*, a genus of plants ranged by Linnæus among the *tetrandria monogynia*, and of which there are eighteen ſpecies; but as many of theſe grow wild in ſeveral parts of England, and few of them are admitted into gardens, it is needleſs to deſcribe them.

Culture of the Scabious.

The annual ſorts of this genus may be propagated by ſowing their ſeeds in a moiſt ſhady border, and when the plants come up, they muſt be kept clean from weeds, and allowed room to ſpread.

The perennial ſorts may be propagated by parting their roots in autumn, and planting them in a ſoft, loamy ſoil, and a ſhady ſituation; or by ſlips, which ſhould be planted in a ſhady border the beginning of April. When they have put out good roots, they may be taken up with balls of earth, and tranſplanted to the places where they are to remain.

SCAPUS ſignifies a peculiar kind of ſtalk, which ſupports the parts of fructification of a plant, and does not grow from any part of the common ſtalk, but riſes immediately from the root.

SCIATICA *Creſs*. See the article Candy-Tuft.

SCREW-TREE, *Helicteres*, a genus of plants ranged by Linnæus among the *gynandria decandria*, and of which there are three ſpecies. 1. Screw-Tree with oval, heart-ſhaped leaves, which are ſawed, woolly on their under ſide, and a taper twiſted fruit. 2. Screw-Tree with heart-ſhaped, pointed, ſawed leaves, woolly on their under ſide, and a ſhort twiſted fruit. 3. Screw-tree with heart-like, crenated leaves, and a hairy twiſted fruit. Theſe plants grow naturally in Jamaica and the Bahama Iſlands. The firſt ſpecies is a ſhrub about five feet high. The bark is yellowiſh. The leaves are heart-ſhaped, ſawed on their edges, woolly on their under ſide, four inches long, and two and a half broad. The flowers grow from the upper part of the branches, upon ſlender foot-ſtalks, which are jointed; they are compoſed of five oblong white petals, and are ſucceeded by a taper fruit two inches and a half long; and ſhaped like a ſcrew.

The ſecond ſpecies riſes with a ſhrubby ſtalk ten feet high. The bark is brown and ſmooth. The leaves are heart-ſhaped, ſawed, end in acute points, and woolly on their under ſide. The flowers grow from the ſides of the branches on ſhort foot-ſtalks; the fruit is not ſo long, but twiſted in the ſame manner as the former.

The third ſpecies, in its native climate, riſes to the height of fourteen or fifteen feet. The bark is of a greyiſh brown. The leaves are broad, of a ſtrong green, hairy on their upper ſide, of a hard ſubſtance, and have ſhort brown foot-ſtalks. The flowers grow from the joints of the young branches, ſometimes ſingle, ſometimes two or three together; they have ſhort foot-ſtalks, and their colour is a beautiful gloſſy yellow. The fruit reſembles that of the firſt ſpecies.

Culture of the Screw-tree.

Theſe plants are propagated by ſeeds, which ſhould be brought from abroad in the fruit. When they arrive they muſt be ſown in pots filled with good garden mould, covering them about a quarter of an inch with the ſame earth, then ſet the pots in a bark-bed of temperate heat; give them a gentle watering, and at night draw a mat over the glaſs of the frame. In the day remove the mat, and, when the ſun is hotteſt, open the bed a little by raiſing the glaſs with a notched ſtick. Water the earth very gently from time to time; and when the plants appear, continue theſe waterings, only be careful not to beat down the ſtalks.

In the ſpring before the ſeeds are ſown, the following compoſt ſhould be prepared for them:

Mix two buſhels of dry paſture earth, one and a half of large ſand, one buſhel of wood pile-earth, and one pound of ſtone-lime. Let this be frequently turned.

Admit the air to the plants in the middle of the day, and when they have got ſome little height, let them be tranſplanted each into a ſeparate pot, filled with the compoſt, and gently watered, and then ſet into the bark-bed again. From this time they will only require to be watered and ſhaded till they are well rooted, and then to be hardened by degrees to the air, by opening the glaſs of the bed in the middle of the day; and nouriſhed by frequent waterings. When they have thus acquired ſome ſtrength, they muſt be removed into the ſtove, and in the middle of our hotteſt days, the glaſſes of the ſtove muſt be opened. At times the plants muſt be ſhifted into larger pots, filled with the ſame compoſt, and the third year they will flower.

SCULL CAP. See the article *Helmet*-Flower.

SEED, according to the definition of Linnæus, is a deciduous part of a vegetable, being the rudiment of a new plant, quickened for vegetation by the ſprinkling of the pollen.

The diſtinctions of a ſeed are, a ſeed, properly ſo called, a nut, and propago: for an account of the two laſt, ſee the articles Nut and Propago.

A ſeed, properly ſo called, which is a rudiment of a new vegetable, furniſhed with ſap, and covered with a bladdery coat or tunic, conſiſts of: 1. A corculum, being the firſt principle of the new plant within the ſeed. 2. A plumula, being a ſcaly part of the corculum, which aſcends. 3. A roſtellum, or a plain part of the corculum, which deſcends. 4. A cotyledon, or a ſide lobe of the ſeed of a porous ſubſtance, and periſhable. 5. A hilum, being an external mark or ſcar on the ſeed, where it was faſtened within the fruit. 6. An arillus, or the proper exterior coat or tunic of the ſeed which comes off of itſelf. 7. A coronula, or little crown of a ſeed, which is either the calyx of a floret adhering to the ſeed, and aſſiſting it to fly, or a down anſwering the ſame end, and connected with the ſeed by a trunk. 8. An alæ, or wing, being a membrane affixed to the ſeed, which by flying helps to diſperſe it.

In reſpect to the number of ſeeds contained within the fruit, plants are either monoſpermous, having one ſeed; dioſpermous, two; triſpermous, three; or tetraſpermous, four ſeeds.

In reſpect to the number of cells, ſome have two cells, though the ſeed in moſt plants have but one cell. In reſpect to the figure of a ſeed, it is either girt, heart-ſhaped, kidney-ſhaped, ovate, or egg-ſhaped, or it is prickly. In reſpect to ſubſtance, a ſeed is either bony or tough. In reſpect to ſize ſeeds may be very ſmall or very large: and in reſpect to ſituation, they are either neſting or diſperſed about the pulp, faſtened to the ſuture, faſtened to the columella, or placed on receptacles.

Every ſeed conſiſts of an embryo-plant, called plantula ſeminalis, with its covers. The embryo, which is the whole future plant in miniature, is called the germ or bud, and is rooted in the cotyledon or placenta, which makes its involucrum or cover. The cotyledon is always double: and in the middle and common center of the two, is a point or ſpeck: *viz.* the embryo plantule, which being acted on by the warmth of the ſun and of the earth, begins to protrude its radicle or root downwards, and its bud upwards; and as the requiſite heat continues, it draws nouriſhment by the root, and ſo continues to unfold itſelf and grow.

The two placentulæ, or cotyledons of a ſeed, are, as it were a caſe to the little embryo plant, covering it up, and ſheltering it from injuries, and feeding it from their own proper ſubſtance, which the plantule receives, and draws to itſelf by an infinite number of little filaments, which it ſends into the body of the placenta. The cotyledons, for the moſt part, abound with a balſam diſpoſed in proper cells: and this ſeems to be oil brought to its greateſt perfection, while it remains tumid, and lodged in theſe repoſitories: one part of the compoſition of this balſam is oily and tenacious, and ſerves to defend the embryo from any extraneous moiſture, and, by its viſcidity to entangle and retain the fine, pure, volatile ſpirit, which is the ultimate production of the plant.

This oil is never obſerved to enter into the veſſels of the embryo, which are too fine to admit ſo thick a fluid.

The ſpirit however, being quickened by an active power, may poſſibly breathe a vital principle into the juices that nouriſh the embryo, and ſtamp upon it the character that diſtinguiſhes the family; after which every thing is changed into the proper nature of that particular plant. Now, when the ſeed is committed to the earth, the placenta ſtill adheres to the embryo for ſome time, and guards it from the acceſs of noxious colds, &c. and even prepares and purifies the cruder juice the young plant is to receive from the earth by ſtraining it through its own body. This it continues to do, till the embryo plant being a little inured to its new element, and its root tolerably fixed in the ground, and fit to abſorb the juice thereof, it then periſhes, and the plant may be ſaid to be delivered; ſo that nature obſerves the ſame method in plants contained in fruits, as in animals in the mother's womb.

Many ſorts of ſeeds will continue good for ſeveral years, and retain their vegetative faculty, whereas others will not grow after they are one year old: this difference is in a great meaſure owing to their abounding more or leſs with oil, and the texture of their outward covering. All ſeeds require ſome ſhare of freſh air, to keep the germen in an healthy ſtate; and when the air is abſolutely excluded, the vegetative quality of the ſeeds will be ſoon loſt. But ſeeds will be longeſt of all preſerved in the earth, provided they are buried ſo deep as to be beyond the influence of the ſun and ſhowers; ſince they have been found to lie thus buried twenty or thirty years, and yet vegetate as well as new ſeeds. How the vegetative life is ſo long preſerved, by burying them ſo deep in the ground, is very difficult to explain; but as the fact is very well known, it accounts for the production of plants out of earth taken from the bottom of vaults, houſes, &c.

In the common method of ſowing ſeeds, there are many kinds which require to be ſown ſoon after they are ripe; and there are many others which lie in the ground a year, ſometimes two or three years, before the plants come up: hence when ſeeds brought from diſtant countries are ſown, the ground ſhould not be diſturbed, at leaſt for two years, for fear of deſtroying the young plants.

As to the method of preſerving ſeeds, the dry kinds are beſt kept in their pods or outer coverings; but the ſeeds of all ſoft fruits, as cucumbers, melons, &c. muſt be cleanſed from the pulp and mucilage which ſurround them, otherwiſe the rotting of theſe parts will corrupt the ſeeds.

When ſeeds are gathered, it ſhould always be done in dry weather; and then they ſhould be hung up in bags in a dry room, ſo as not to deprive them of air.

In ſending ſeeds from one country to another, the great care to be taken is to ſecure them from vermin, and preſerve them dry, otherwiſe they will mould and decay. The method Mr. Cateſby always obſerved, was to put his ſeeds dry into papers, and then put them into a dry gourd-ſhell, and ſeal them up.

There are ſome perſons who have directed to put them into glaſſes, and ſeal them cloſely down, to keep out the external air: but from ſeveral experiments of this kind, which had been made, it was found that ſeeds thus cloſely put up will not grow if they remain ſtopped up any conſiderable time: all ſeeds requiring ſome ſhare of air to preſerve their vegetating quality, ſo that where a perſon has no other conveniency, they may be put into bags, and hung up in a dry part of the ſhip, or put in a trunk where they may be ſafe from vermin, in which place they will keep very well.

But notwithſtanding theſe experiments, it is the opinion of the Reverend Mr. Pullein, that the reaſon why ſuch ſeeds did not vegetate, was not becauſe freſh air was excluded, but becauſe the ſeeds were confined in an air, which, by being pent up, and loaded with the matter perſpiring from the ſeeds, became continually more unwholſome, ſo as at laſt to deſtroy the vegetative principle. From ſeveral experiments he has made, he is perſuaded that the only method to preſerve the vegetative principle of ſeeds, for any long ſpace of time, is, totally to exclude the air, in the following manner: Let ſome water be heated in a ſmall tin pannicle to ſuch a degree as will juſt keep tallow or bees-wax fluid: let it be near full of water, ſo as it may contain only about a quarter or half an inch thickneſs of melted wax on its ſurface: ſet beſide it a ſmall veſſel of cold water, and by means of a ſmall pair of plyers, with ſharp points turned inward, take a ſeed with its ſmall or germinating end uppermoſt, and when the wax is melted on the ſurface of the water, immerge the ſeed in it with a ſudden dip, and then, as quickly as you can, dip it in the cold water; by means of which it will be coated over with wax, without much danger of being hurt by the heat.

Moſt large ſeeds may be coated in this manner, and even the ſmaller ſeeds, which are contained in dry coriaceous pods, may have the whole pod covered in the ſame way, which it is imagined will be ſufficient to preſerve them for as long a time as is neceſſary; but it ſhould be remembered to let them always have attained a proper degree of hardneſs and dryneſs, before they are coated. If melted wax is found to be any way hurtful by too great heat, then melted tallow may be uſed in its ſtead. The very ſmall ſeeds which have thin and tender coats may be preſerved by kneading up a quantity of them into ſmall pellets, with clay, and when the pellets are compleatly dry, coating each of them in the manner already directed: or if they are ſeeds whoſe berries are pulpy, they may be formed into ſmall cakes or pellets, and then coated with bees-wax or tallow.

In caſe the ſeed itſelf is ſmeared with tallow or wax, it becomes neceſſary, before it is ſown, to clear it away: to which nothing more is required than to ſcrape the large ſeeds with a knife, and the ſmaller kind may be rubbed in a bag, with ſoap-water and a little fine ſand, in ſuch a degree as their texture will bear, till the wax or tallow is cleared away, and free acceſs given to air and moiſture: which, with the addition of heat, are the great inſtruments of vegetation.

SEGMENTS *of leaves*, are the parts of ſuch leaves of plants as are divided, or cut into many threads.

SELAGO, a genus of plants that has no Engliſh name, and of which there is only one ſpecies, ranged by Linnæus among the *didynamia angioſpermia.* It is a native of Æthiopia. The root is divided, hard, and hung with innumerable fibres. The ſtem is woody, and divides at a ſmall height into a great number of branches. The bark on the larger parts is greyiſh, but on the ſmaller it is of a pale green, or lightly daſhed with a reddiſh brown. The leaves are ſmall, oblong, ſharp-pointed, and ſtand in cluſters at the joints, like pencils. The flowers are alſo very ſmall, but ſtand in exceeding thick cluſters. They are white, and when viewed at a little diſtance, each appears to have four ſmall ſpots of a gold yellow. Theſe are the buttons terminating the filaments, but they ſeem at ſome diſtance placed on the flower.

Culture of the SELAGO.

It is propagated by ſlips, which ſhould be taken early in ſpring from a thriving plant, and pierced through in two or three places with a fine awl, and then ſet into pots filled with the following compoſt:

A barrow of earth from under the turf of a dry common, a peck of coal-aſhes, two pecks of marle, and a pound of fine ſhavings of horn: this ſhould be mixed in September, and it will then be fit for uſe in ſpring.

When all the plants are ſet, one in each pot, give them a gentle watering, and plunge the pots up to the rim in a bark-bed of a gentle heat, where they muſt be ſhaded carefully, and watered every other day, and when they have taken root, admit the air to them by degrees. When they have ſtood ſome time in theſe ſmall pots, let ſome larger be filled up one fourth with the ſame compoſt: then looſen with a thin-bladed knife the earth from the ſides of the ſmall pots, and get it out entire: place this with its plant upright in the larger pot, and fill it up carefully with the compoſt: give a gentle watering, and ſet them upon the tan in the ſame bed for ſome days, watering them every evening. When they are well rooted, they muſt be inured to the open air by degrees, into which they may be removed in the middle of a warm cloudy day, and ſet among the exotics. After this they require no particular treatment, they muſt only be managed as the reſt, and at the approach of winter be taken into ſhelter.

SELFHEAL, *Prunella*, a genus of plants ranged by Linnæus among the *didynamia gymnoſpermia*, and of which there are ſeveral ſpecies, chiefly preſerved in botanic gardens for the ſake of variety, for they are plants of no great beauty. The moſt ornamental among them is the Violet Selfheal, the culture of which is a ſufficient direction for that of every other ſpecies of this genus, though this is only a variety obtained from the common Selfheal of our meadows.

The root of this plant is oblong, irregular, brown, and hung about with many ſlender and very long white fibres. The firſt leaves are numerous, and have long ſlender foot-ſtalks. They are oblong, indented, very broad at the baſe, and ſmaller to the point. The ſtalk is ten inches high, purpliſh at the bottom, toward the top of a pale green, and covered with a light velvety down. On each ſide of the ſtalk there runs a ſlight furrow, and at diſtances there are two knots; the ſtalk at theſe is tinged with purple, and there riſe from each of the knots two leaves, which have ſlender foot-ſtalks, ſhorter than thoſe from the root; but the leaves reſemble the former ſhape: their colour is a deep ſtrong green, they are ſmooth on the upper ſide, and hairy underneath. The flowers are large and very ornamental: they terminate the ſtalk in a thick ſhort ſpike. Their colour is a deep and elegant violet blue, but they have no ſcent.

Culture of the Violet SELFHEAL.

It is propagated by ſeeds, which ſhould be ſown the beginning of Auguſt on a border open to the ſouth: the ſeeds muſt be ſcattered very thick, and the cloſer to the wall the better. In September the young plants will appear, when they muſt be kept clean from weeds all the winter, and in ſpring the weakeſt of them muſt be pulled up, leaving the ſtrongeſt at about a foot diſtance, and this is all the care they require. When they flower if they are not permitted to ſeed, the ſtalks being cut off as the flowers fade, more will be produced in their place throughout a great part of the year, and afford a moſt pleaſing variety.

SEMINARY, denotes the ſeed-plot, or place allotted for raiſing plants from ſeed, and keeping them till they are fit to be removed into the garden or nurſery. See the article NURSERY.

When the Seminary is intended for trees, it muſt be large, and of a ſoil adapted to the generality of the trees intended to be raiſed in it: but that which is moſt in uſe is for the ſupply of the flower-garden, and is the place where flowers are to be raiſed from their ſeeds, to procure varieties; or, according to the expreſſion of the floriſts, new flowers: as alſo for the ſowing all the biennial plants, to ſucceed thoſe which decay in the flower-garden.

The Seminary ſhould always be ſituated at ſome diſtance from the houſe, and be walled or paled round, and kept under lock and key, to keep out dogs, &c. and to prevent a great deal of damage that is frequently done by thoſe who are unacquainted with gardening.

The ſeveral directions for the management of the Seminary are to be ſeen under the names of the ſeveral plants intended to be raiſed in it.

Bladder SENNA. See the article COLUTEA.

Scorpion SENNA. See the article CORONILLA.

SENSITIVE PLANT, *Mimoſa*, a genus of plants ranged by Linnæus among the *polyandria monogynia*, and of which there are ſeveral ſpecies, all requiring the ſame culture: we ſhall therefore confine ourſelves to the deſcription of one only; *viz.*

Thorny SENSITIVE PLANT. It is a native of the Brazils. The root is divided into many parts, and hung with fibres; the ſtem is round, as thick as a gooſe-quill, of a browniſh colour towards the baſe, and greener near the extremities; it is beſet at diſtances with ſmall, brown, hooked, and ſharp prickles. The height is about two feet, and it divides into innumerable branches. The bark on the lower part uſually cracks and grows rough, but on the younger part it always remains ſmooth. The leaves are very ſingular and beautiful. Each is ſupported on a long tender foot-ſtalk, which often droops with it; and is compoſed of five, ſix, or eight parts, placed in the fingered manner, and each of theſe is regularly pinnated; the pinnæ being oblong, ſmall, and extremely numerous. The colour is a freſh but not very dark green; and the pinnæ, and their ſupporting ribs naturally ſtand wide expanded, but on a touch with the hand, or only on the motion of the air in an approach toward touching it, they collapſe and as it were fade; but after a little time of reſt the ribs riſe to their proper places again; and the leaves expand with their firſt vigour. The flowers are numerous, collected into a kind of round heads, placed on ſlender foot-ſtalks at the extremities of the branches. Their colour at firſt is a greeniſh white, but they afterwards acquire a tinge of purple.

Culture of the SENSITIVE PLANT.

It is propagated by ſeeds, which, early in ſpring, muſt be ſown upon a common hot-bed, covered four inches with rich garden mould. When the plants appear let them be thinned where they grow too cloſe; and when they have attained the height of three inches they muſt be tranſplanted each into a ſmall pot, filled with the richeſt garden-mould; and when they have had a gentle watering, they muſt be ſet up to the rim in a bark-bed of moderate heat. Let the glaſſes be covered with mats, to ſhade the plants till they are perfectly rooted; after which let them by degrees be hardened a little, by admitting a ſmall quantity of air in a mild day; and when the plants are grown to ſome farther bigneſs, they muſt be ſhifted out of theſe pots into larger: this ſhould be done by ſhaking them out with the entire lump of mould, and after trimming the ſtraggling fibres, they are to be ſet upon a little of the freſh mould in the new pot; and then the pot filled up. Theſe muſt be again ſet upon the rim in the bark-bed; and ſhaded till they have recovered the check of this removal. They muſt then be watered at times; and have ſome air admitted to them in hot days; and when they have acquired a handſome ſize, they are to be removed into the ſtove.

This plant has obtained the appellation of ſenſitive from its remarkable propenſity of receding from the touch, and giving ſigns, as it were, of animal life and ſenſation; this motion it performs by means of three diſtinct articulations, viz. of a ſingle leaf with its pedicle, of the pedicle to its branch, and of the branch to the trunk, or main ſtem; the primary motion of all which is the cloſing of the two halves of the leaf on its rib; then the rib or pedicle itſelf cloſes; and if the motion wherewith the plant is moved be very ſtrong, even the branches have the ſenſation propagated to them, and apply themſelves to the main ſtem, as the ſimple leaves did before to their ribs, and theſe ribs to their branches; ſo that the whole plant, in this ſtate, forms itſelf, from a very complexly branched figure, into a ſort of ſtrait cylindrical one.

Theſe motions are wholly independent on one another, as may be proved by experiment. It ſhould appear that if the ſtalks are moved and collapſe towards the branches, or thoſe towards the trunk, that the leaves, whoſe motion is uſually primary to theſe, ſhould be affected alſo; yet experiment proves, that it is poſſible to touch the branches in ſuch a manner, as to affect them only, and make them apply themſelves to the trunk, while the leaves feel nothing of the touch: but this cannot be, unleſs the branches are ſo diſpoſed, as that they can fall to the trunk, without ſuffering their leaves to touch any other part of the plant in their paſſage; becauſe, if they do, they immediately become affected. Winds and heavy rains cauſe the ſenſitive plants to ſhut up their leaves, while eaſy ſhowers do not at all affect them: it is plain from hence, that the agitation of the plant by the wind, and the ſtrokes given by the large and haſty drops of rain, are what cauſe the contraction.

By whatever accident the plant has been made to cloſe its leaves, it always regularly opens them again afterwards. This, however, requires different times, according to ſeveral circumſtances, as the time of the day, the ſeaſon of the year, and the more or leſs vigorous and healthy ſtate of the plant: ſometimes this is done in ten minutes, ſometimes it requires half an hour: and the manner is not leſs different than the time; for ſometimes the leaves unfold themſelves firſt; and at others the branches, and often all is done at once, and the whole plant ſeems in motion at a time.

In endeavouring to account for the motions of this plant, Meſſieurs du Fay and du Hamel have conjectured, that they are performed by means of a kind of very nice and fine hinges, which communicate one with another by very minute and ſlender cords, which occaſion them to act in the manner we ſee, when the plant is ſufficiently diſturbed, and theſe cords ſhaken; and what gives a ſtrong probability to this conjecture is, that the decayed and dying leaves of this plant perform this motion as regularly and as vigorouſly, as thoſe which are freſh and full of juice. It ſeems plain, that, while the juices are evaporating, and the parenchymatous ſubſtance of the leaves drying up, theſe more ſolid parts, the lines and cordages, retain their figure; and, conſequently, if it is by means of theſe, that the motion is always performed, it will be performed as well in theſe as in the freſher leaves; which could not be the caſe were it owing to the juices.

The natural opening and ſhutting of the leaves of this plant night and morning, varies alſo according to circumſtances of place, temperature, &c. In the month of Auguſt a Senſitive Plant was carried in a pot out of its uſual place into a dark cave: the motion that it received in the carriage ſhut up its leaves, and they did not expand for twenty-four hours afterwards. At this time they became moderately open, and was then ſubject to no changes at night or morning, but remained three days and nights with their leaves in the ſame moderately open ſtate. At the end of this time the plant was brought out again into the air, where the leaves recovered their natural periodical motions, as ſtrongly as if it had never been in this forced ſtate.

Repeated experiments have proved, that it is not the light of the day which opens theſe plants, nor the darkneſs of the night which cloſes them; neither is it the alternate warmth of the day and cold of the night that produce this effect, ſince it ſhuts in nights which are much warmer than the days often are in which it opens, and the increaſing the heat of the ſtove has not been found to have the leaſt effect on the leaves.

The moſt probable conjecture ſeems that it is not great heat or cold, ſuch as it can bear, that brings on this effect, but the ſudden change from one to the other, and this is confirmed by the following experiment: that if one of theſe plants is raiſed under a glaſs-bell, and it is ſuddenly taken off, the leaves immediately cloſe, even if it is done in the middle of the day; and it is alſo obſerved that the more open or expoſed the plant ſtands, the more ſtrong and lively this effect is produced.

The great heats of ſummer affect the plant in ſome degree like cold, cauſing it to cloſe its leaves a little: but it is always leaſt affected about nine o'clock in the morning, and that is conſequently the moſt proper time to make experiments on it.

On examining this plant there may be obſerved a ſmall ſpot, diſtinguiſhable by its paler colour in the articulations of its leaves, where the greateſt and niceſt ſenſibility is evidently placed.

SEPTEMBER, the ninth month of the year.

In the *Flower-garden*, about the beginning of this month, water the autumnal flowers in the open ground: pick up dead leaves from the ſtove and green-houſe plants: ſtir the earth about ſuch of them as are flowering or going to flower, and give theſe alſo ſlight but frequent waterings: ſearch for ſlugs, and other vermin early in the morning: pick away dead leaves from ſhrubs, and keep the borders clear of weeds, the graſs well cut, and the gravel rolled and weeded. Preparation muſt be made early in this month for plants from the nurſery, that are now to be brought into the garden. Let the borders be examined, as to the condition of their ſoil; ſome will be found exhauſted, others only ſtiff for want of digging: labour is required for theſe, but for the others labour and manure. Early tulips ſhould now be put into the ground. It will alſo be time to plant early anemonies. Look over the box-edgings, repair where they are faulty, and take up and replant them where they are grown too large.

About the middle of this month is the great ſeaſon of tranſplanting for the flower-garden in the perennial and biennial kinds. The ſeeds of many of the beſt flowers and curious plants, which require no additional heat, but only a good ſoil and reſt, ſhould now be ſown. When the gardener has planted his borders, and ſown his choice ſeeds, let him go over the ground, and obſerve what plants have paſt their flowering. Thoſe from which he intends to ſave ſeeds, ſhould be marked for that purpoſe, tying them up to ſticks: but let him make it a conſtant rule never to let any perennial plant ripen its ſeed unleſs he wants it, as nothing weakens the root ſo much. Cut down the ſtems cloſe to the ground, and dig the earth round about their roots. About the end of this month the gardener ſhould go over his ground, and ſee that all the layers are removed from the old roots; if there be any gap or deficiency in the borders planting from the Seminary, fill it up, and ſee that every part has its plants for the ſucceeding years flowering. Scatter a little rotten dung, mixed with freſh mould, upon the ſurface of the borders that want refreſhment. The roots of tulips, ranunculus, and anemonies ſhould now be planted.

In the *Seminary*, about the beginning of this month, prepare new beds for the ſeveral ſeedlings whoſe ſize does not fit them for their places in the garden, though they require to be removed from the beds on which they were raiſed. The next care is, for thoſe that are to ſtand longer where they are, clear away all ſeeds from theſe. Trim up thoſe ſhrubs which require the knife; and train the reſt by ſtakes, or cords, to their proper form. Pull up by hand all weeds from among ſeedling trees and hardy plants, and give good waterings to ſettle the looſe earth about them, after the diſturbance from tearing up the larger rooted weeds. Many plants and trees will now require to be removed, not only from the Seminary into their places in the garden, but into different quarters there, as they increaſe in ſize, and crowd upon one another. The ſeaſon for tranſplanting with leaſt danger or leaſt damage, is juſt when the leaves are decayed. About the middle of the month break and turn the ground preparing for receiving the trees and ſhrubs yet to be planted. Water thoſe already ſet, and clear away weeds from ſuch as are to remain in their places. About the end of the month fill boxes with light, rich earth, for receiving the ſeeds of ſuch flowers as are long in coming to perfection.

In the *Fruit-garden*, about the beginning of this month, let the gardener dig the ground in which he intends to ſet new trees. Gather ſuch fruits as are ripe, and preſerve the reſt. Whenever a waſp is ſeen it ſhould be deſtroyed, for one waſp that eſcapes at this time and ſurvives the winter, will lay the foundation for a ſwarm; the deſtruction of them ſingly at this time, and the ſeeking and deſtroying their neſts in the ſpring, are the two great concerns for guarding fruit from thoſe very troubleſome devourers of it. Wall-fruit, eſpecially ſuch as grow againſt old walls, is liable to a ſmall but numerous enemy, the ant. This creature lives in the earth of ill-managed borders, and lurks in the cracks of walls, and in old nail-holes. The gardener muſt obſerve which is the caſe, and ſhould convey into their holes a mixture of brine and ſoot, which will deſtroy or diſlodge them. About the end of this month propagate gooſeberry and currant-trees by cuttings. Prune and train the trees in the forcing-frame. Continue carefully to gather fruit, and never gather them but in their perfection: this is to be known by their colour and ſurface.

In the *Kitchen-garden*, about the beginning of September, weeds riſe in every place, which muſt be deſtroyed with great care by the ſpade, the hoe, or by the hand; and when the weeds are drawn off the ground, let there come a good watering. Sow Dutch lettuce. Let the celery be earthed as it riſes; and as moſt of the kitchen-garden ground will now be cleared of its crops, ſome part of it muſt ſerve for receiving the tranſplanted growths for winter, and ſome muſt be reſerved for the ſpring ſowing. The gardener making the proper ſeparation and diſpoſition now, he will find his work proceed with regularity. Let that diviſion uſed for the autumnal tranſplantation be dug deep and well: let it be laid in borders or beds of proper form, and this broke by the ſpade: let it lie expoſed to dew and rain to enrich it, till the time of planting. The other part which is to lie vacant till the ſpring, ſhould enjoy all the advantages of fallow.

The time for making muſhroom-beds is now approaching; the late onions, cabbages, coleworts, and carrots, will be appearing now, and care muſt be taken to deſtroy the weeds that will riſe with them. Save ſeeds from all kinds as they ripen. Gather them ſucceſſively as they are fit, and ſpread them in an airy, ſhady place. When they are perfectly dry in the huſks, let them be ſeparated and cleared from them: after which they may be ſpread out a day or two more to harden, and then put up to be ready for uſe. Broccoli, at this time, requires particular care. Froſts are to be expected ſoon, and therefore the middle of this month is a ſeaſon for the lateſt tranſplantation. Earth up chardoons with care. In wet days continue tranſplanting. Tranſplant coleworts, where they are to ſtand till the ſpring. Set out cabbage-plants at diſtances, in a good piece of mellow ground, where they are to ſtand till they be removed to the place in which they are to remain.

About the end of the month the gardener ſhould yet ſow ſome young ſallading. Dreſs the aſparagus beds and the alleys between the beds, and thoſe alleys will be a fine ſpot for ſome colewort-plants. Let a piece of ground be well choſen for a crop of beans and peas: it muſt be defended from cold, and open to the ſouth ſun. The former crop of cauliflowers will be now beginning to get heads; they muſt be defended from ſun and rain, and yet muſt have a free air. Broccoli will now be in a promiſing condition; care muſt therefore be taken to protect it from froſts, and at the ſame time encreaſe its vigour. Break the earth between the plants to the depth of five inches, and draw a good deal of it about their ſtalks. The muſhroom-beds muſt be defended from the approaching cold and wet, and ſhould be covered with a ridge of thatch.

Green-houſe and *Stove*. The ſeaſon advances about the middle of this month, when the cold nights will be injurious to tender exotics, which muſt be defended by taking them into the green-houſe. As they are brought in, let them be carefully examined. Let all dead leaves be taken off: the earth ſhould then be carefully dug up about their roots, with a ſmall, ſtrong trowel, and a ſlight covering of freſh mould put over them: they are then to be placed handſomely on the benches, and on the floor. None receive ſo much benefit from the free air as the ſucculent plants, they ſhould therefore be ſuffered to remain in it as long as they can with ſafety. This is to be determined by the weather; they may ſometimes be left out till the beginning of October. Take the advantage of dry days to bring in the plants: let the tender kinds be taken in firſt, and placed near the front ſometime before they are ſet, where they are to ſtand the winter. Towards the end of this month the bark-bed muſt be made for the reception of the ſtove-plants. The plants muſt be ſet in when the warmth begins, and the bed muſt be watched and examined from time to time, to ſee that it does not acquire too violent a heat. When the plants are removed into the ſtove and green-houſe, the ſame care and management muſt be uſed: the earth muſt be ſtirred a little at the ſurface, all dead leaves muſt be taken off, and the branches and ſtems muſt be looked over and cleared of foulneſs and inſects.

SERVICE-TREE, *Sorbus*, a genus of plants ranged by Linnæus among the *icoſandria trigynia*, and of which there are only two ſpecies. 1. Service-tree, with winged leaves, ſmooth on both ſides; commonly called quicken, quickbeam, mountain-aſh, and roan-tree. 2. Service-tree, with winged leaves, woolly on their under-ſide; or the cultivated Service-tree.

The firſt ſpecies is a native of many parts of England, and is cultivated in the nurſery-gardens as a flowering ſhrub.

The ſecond ſpecies is a native of the warmer parts of Europe, where the fruit is in great eſteem, but, like the medlar, they are not fit for eating till in a ſtate of decay.

Culture of the SERVICE-TREE.

Both theſe ſpecies are propagated by ſeeds, which ſhould be ſown in pots ſoon after they are ripe; the pots muſt be placed under a common frame in winter, and in the ſpring plunged into a moderate hot-bed. When the plants come up they muſt be kept clean from weeds, and watered in dry weather, expoſing them to the open air as ſoon as they have got a little ſtrength. About the middle of October they muſt be tranſplanted into a warm, light ſpot of ground, and planted in rows two feet aſunder, and a foot diſtance in the rows. During the ſummer the ground ſhould be kept conſtantly clear from weeds. In winter there ſhould be a little mulch laid upon the ſurface about their roots, and in the ſpring the ground between them ſhould be dug, taking care not to injure or cut the roots of the plants.

In this nurſery the plants may continue three or four years, when they ſhould be tranſplanted to the places where they are deſigned to remain. They ſucceed beſt in a ſtrong, moiſt ſoil, and a warm ſituation.

Wild SERVICE, *Cratægus*, a genus of plants ranged by Linnæus among the *icoſandria digynia*, and of which there are nine ſpecies: but as ſome of them grow wild in this country, and ſuch as are propagated here require all the ſame method of culture, it is not neceſſary to deſcribe them.

Culture of the Wild SERVICE.

Theſe trees are beſt propagated by ſeeds, which ſhould be ſown ſoon after they are ripe. They may alſo be propagated by layers or cuttings, and they will take root by grafting or budding upon pear-ſtocks. They require a ſtrong deep ſoil.

SETTERWORT, a ſpecies of Black Hellebore. See the article *Black* HELLEBORE.

SHADDOCK, a ſpecies of Orange. See the article ORANGE-TREE.

SHEPHERD'S NEEDLE, or VENUS'S COMB, *Scandix*, a genus of plants ranged by Linnæus among the *pentandria digynia*, and of which there are eight ſpecies. 1. Shepherd's Needle with angular, furrowed ſeeds. 2. Shepherd's Needle with ſmooth ſeeds, and the longeſt beak. 3. Shepherd's Needle with ſhining, oval, awl-ſhaped ſeeds. 4. Shepherd's Needle with oval, rough ſeeds, uniform petals, and a ſmooth ſtalk. 5. Shepherd's Needle with awl-ſhaped, briſtly ſeeds; radiated flowers, and ſmooth ſtalks. 6. Shepherd's Needle with cylindrical, briſtly ſeeds, a briſtly ſtalk, and tumid joints. 7. Shepherd's Needle with a hairy foot-ſtalk, and ſhort ſeeds. 8. Shepherd's Needle with ſhining, oval, awl-ſhaped ſeeds, and decompounded leaves.

The firſt ſpecies is a native of Germany. The ſecond, third, and fourth grow naturally in England, but are never cultivated in gardens. The fifth is a native of Italy and Crete. The ſixth of Sicily. The ſeventh of the eaſt; and the eighth of Virginia.

Culture of the SHEPHERD'S NEEDLE.

The firſt ſpecies is propagated by ſeeds, which may be ſown in any ſoil or ſituation, and the plants will riſe without farther care.

The fifth, ſixth, ſeventh, and eighth ſpecies are propagated by ſeeds, which if permitted to ſcatter, will raiſe new plants, without any other trouble than that of tranſplanting them to ſome abject part of the garden, as they will grow in any ſoil or ſituation.

SHEPHERD'S ROD, a ſpecies of Teaſel. See the article TEASEL.

SHRUB, a vegetable of a genus between a tree and an herb, but of a woody ſubſtance, ſending forth many ſtems from the roots, whereas trees have only a ſingle trunk or body. See the article TREE.

SHRUBBY PLANTS, thoſe which are of a hard, woody ſubſtance, and do not riſe to the height of trees.

SIDESADDLE-FLOWER, *Sarracena*, a genus of plants ranged by Linnæus among the *polyandria monogynia*, and of which there are only two ſpecies. 1. Sideſaddle-flower, with irregularly ſwoln leaves. 2. Sideſaddle-flower, with cloſed leaves.

The firſt ſpecies is a native of North America. The root is divided into many ſpreading parts, hung with numerous fibres. The leaves that riſe from this are of an extraordinary form: large, hollow like pitchers, and ſwelled out into a kind of irregular bunch behind: of a firm ſubſtance, ſupported by ſtrong ribs, and capable of holding a vaſt deal of water. They begin from a ſmall baſe, which is uſually purpliſh, and then enlarge by degrees to the place of this irregular ſwelling: thence they are again contracted upwards into a kind of neck, and from that part they again ſwell out into a broad opening or mouth, whoſe edges ſtand obliquely, and are waved ſo that they reſemble ears. The ſtalk riſes naked in the centre of the tuft of leaves: it is round, upright, and two feet high. On its top ſtands a ſingle flower, large, open, and of a glowing purple: this has a double cup; the under one is formed of three little oval leaves, and falls with the flower; the upper one is compoſed of five very large leaves, tinged with the colour of the flower, and adding greatly to its beauty; theſe fall alſo with the others.

The ſecond ſpecies is a native of Carolina. The leaves are near three feet long, ſmall at the bottom, and widening gradually to the top. They are hollow, and arched over at the mouth. The flowers grow on naked pedicles riſing from the root.

Culture of the SIDESADDLE-FLOWER.

The beſt method of obtaining theſe plants is to have a parcel of them taken up young in their natural places of growth, with a good ball of earth to each, and ſet in a tub or box of mould; and they muſt be watered at times, which will keep them alive during their paſſage.

On their arrival in England as many large pots muſt be prepared as there are plants, by filling them halfway up with earth taken from a bog: let each plant with its ball of earth be ſet upright in one of theſe pots, and fill round carefully with more of the bog-earth, till the pots are full within an inch and a half: fill up this with rich earth from under a wood-pile, and give the plants a good watering.

The next day, when the earth is a little ſunk, lay upon each pot, and all round the baſes of the leaves of the plants, a large quantity of the great white ſphagnum, freſh gathered from the bog. Pour more water upon this, from a fine-noſed watering pot, and ſet the pots in a warm ſheltered, and ſomewhat ſhady place. Repeat the watering every day; and at the approach of autumn take them into the green-houſe; water them well, and, after a week, remove them into the ſtove; ſet the pots up to the rim in bark, and give them frequent but gentle waterings. It is uncertain whether they will flower the firſt or ſecond year.

SILENE, *Viſcous Campion*, a genus of plants ranged by Linnæus among the *decandria trigynia*, and of which there are no leſs than twenty-ſeven ſpecies: but as all of them are never cultivated in any other than botanic gardens, for the ſake of variety, it will be ſufficient to deſcribe the following ſpecies only. 1. Silene, with entire, roundiſh petals, and erect fruit, in alternate order to the ſtalk; commonly called Dwarf Lychnis. 2. Silene, with bifid petals, nodding flowers, growing from the ſide of the ſtalks, all turning to one ſide, and a recurved ſtalk. 3. Silene, with bifid petals, a ſhrubby ſtalk, broad, ſpear-ſhaped leaves and panicles, divided in threes. 4. Silene, with the lower leaves very blunt and ſpoon-ſhaped, and thoſe upon the ſtalks almoſt in whorls. 5. Silene, with globular, acute-pointed cups to the fruit, marked with thirty ſtripes, and ſmooth leaves. 6. Silene, with ſwollen, pendulous cups to the fruit, with ten rough angles. 7. Silene, with bifid petals, a ſtalk divided by pairs, flowers ſitting cloſe to the wings of the ſtalk, and ſmooth leaves. 8. Silene, with flowers gathered into bunches, and the upper leaves ſmooth and heart-ſhaped; commonly called Lobel's Catchfly.

Theſe plants are all natives of different parts of Europe.

Culture of the SILENE.

They are all propagated by ſeeds, which in autumn ſhould be ſown thin upon a border of light earth; and in the ſpring, when the plants come up, they muſt be thinned to the diſtance of four inches, and afterwards kept clean from weeds.

SILIQUOSE PLANTS, thoſe which produce pods, and are otherwiſe called Leguminous plants.

Virginian SILK, *Periploca*, a genus of plants ranged by Linnæus among the *pentandria digynia*, and of which there are four ſpecies. 1. Virginian Silk, with flowers hairy on the inſide. 2. Virginian Silk, with imbricated ſpikes. 3. Virginian Silk, with a hairy ſtalk. 4. Virginian Silk, with narrow, ſpear-ſhaped leaves.

The firſt ſpecies is a native of Syria; and the ſecond, third, and fourth of the Indies.

Culture of the Virginian SILK.

The firſt ſpecies is propagated by laying down the branches, which, when they have put out roots, may be cut from the old plant, and planted where they are deſigned to remain, either in autumn after their leaves begin to fall, or in ſpring before they begin to ſhoot. They ſhould be placed where they may have a ſupport, otherwiſe they will trail on the ground, and faſten round every plant in their reach.

The ſecond, third, and fourth ſpecies are propagated by laying down their branches; or from ſeeds, which ſhould be ſown upon a hot-bed: and when the plants are come up, they muſt be treated like other tender exotics.

SILVER-TREE, *Protea*, a genus of plants ranged by Linnæus among the *tetrandria monogynia*, and of which there are only two ſpecies. 1. Silver-tree, with oblique, acute, ſpear-pointed leaves, and floral ones placed verticillately. 2. Spherical-headed Silver tree, with oval, obtuſe, imbricated leaves.

Theſe are ſhrubby plants, natives of Africa, and are cultivated for the beauty of their ſhining foliage, which reſembles ſilver, and makes a moſt elegant appearance in the green-houſe at all ſeaſons.

Culture of the SILVER-TREE.

The firſt ſpecies is propagated by ſeeds, which ſhould be procured from the places where the plant grows naturally, and ſown in ſmall pots, filled with ſoft ſandy loam, and plunged into a moderate hot-bed, giving them a gentle watering every evening. The plants muſt remain in theſe pots till they are about three inches high, and then be tranſplanted each into a ſeparate pot filled with the ſame earth, and again plunged into the hot-bed, obſerving to water them duly, to ſhade them at noon, and to give them air at times, by raiſing the glaſſes.

In the middle of ſummer they ſhould be placed in the open air, in a warm and ſheltered ſituation, and watered at times. They muſt afterwards be removed into larger pots, and in autumn taken into the green-houſe: where they muſt always have as much free air as they can bear, for on this depends the ſilvery colour of their leaves.

The ſecond ſpecies is alſo raiſed from ſeeds, which ſhould be ſown in pots filled with light earth, about the beginning of March. Set the pots up to the rim in a bark-bed, and water them gently once in three days. When the plants have obtained a little ſtrength, let them be planted each in a ſmall pot, which muſt be placed in the bark-bed as before. The glaſſes muſt be ſhaded in the middle of the day, and a little air, from time to time, muſt be admitted, allowing them gentle waterings. When the plants are well rooted they muſt be ſhifted into larger pots and taken into the ſtove.

SILVER-BUSH, or *Jupiter's*-BEARD. See the article *Jupiter's*-BEARD.

SISARUM, a ſpecies of Water Parſnep. See the article *Water* PARSNEP.

SISYRINCHIUM, according to Linnæus a ſpecies of Iris, but conſidered by other authors as a diſtinct genus, of which there are three ſpecies: 1. Siſyrinchium, with ſword-ſhaped leaves embracing the ſtalks. 2. Siſyrinchium, with linear, ſword-ſhaped leaves. 3. Siſyrinchium, with a plaited leaf.

The firſt ſpecies is a native of Bermuda. The ſecond of Virginia; and the third grows naturally in the Weſt-Indies.

Culture of the SISYRINCHIUM.

The firſt and ſecond ſpecies are propagated by ſeeds, which ſhould be ſown in autumn, ſoon after they are ripe, upon a border where they may have only the morning ſun. In the ſpring the plants will appear, when great care muſt be taken not to pull them up for graſs, which their leaves greatly reſemble. During the firſt ſummer they will require no other care but to keep them clean from weeds, unleſs the plants ſhould come up ſo cloſe as not to have room to grow, in which caſe part of them ſhould be drawn out, and planted in a ſhady border at three inches diſtance. In autumn they muſt be tranſplanted to the places where they are to remain, which ſhould be in a ſhady ſituation, and a ſoft, loamy, undunged ſoil, and the following ſummer they will flower.

They may alſo be propagated by parting of their roots, which ſhould be done in autumn, and they will get good root before winter.

The third ſpecies is propagated by off-ſets from the roots: the time for doing which is ſoon after the leaves decay, or before the roots begin to ſhoot again. They muſt be planted in ſmall pots, and plunged into the tan-bed in the ſtove, where they ſhould conſtantly remain.

SKIRRET. See the article *Water* PARSNEP.

SMALLAGE, a ſpecies of Parſley. See the article PARSLEY.

SNAIL-TREFOIL, *Medicago*, a genus of plants, of which there are a number of ſpecies, but the five following are the only ones cultivated in gardens. 1. Snail Trefoil, with branching foot-ſtalks, ſnail-ſhaped, prickly pods, and a trailing woolly ſtalk; or Sea Medick. 2. Snail Trefoil; commonly called Snails. 3. Snail Trefoil, with a ſmall, ſmooth fruit. 4. Snail Trefoil, with a large fruit, whoſe ſpines point upward and downward; commonly called Hedgehog. 5. Snail Trefoil, with a round prickly capſule, and elegantly cut leaves.

Theſe plants are all natives of different parts of Europe.

Culture of the SNAIL TREFOIL.

The firſt ſpecies is propagated by ſeeds, which ſhould be ſown on a dry, warm border where the plants are to remain: when they come up, two or three of them may be tranſplanted into ſmall pots, and removed into ſhelter in the winter. Thoſe plants which are left remaining, will require no other culture but to thin them where they grow too cloſe, and to keep them clean from weeds.

It may alſo be propagated by cuttings, planted in June or July, in a ſhady border, covering them cloſe with a glaſs. The will take root in about ſix weeks, and may then be planted either in a warm border or in pots, and treated in the ſame way as the ſeedling plants.

The ſecond, third, fourth, and fifth ſpecies, are propagated by ſeeds, which ſhould be ſown in the middle of April, where the plants are to remain; the plants ſhould be thinned where they riſe too cloſe, and kept clean from weeds, which is all the culture they require.

SNAKEROOT, a ſpecies of Birthwort. See the article BIRTHWORT.

SNAKEWORT, a ſpecies of Milkwort. See the article MILKWORT.

SNAP-DRAGON. See the article CALF'S-SNOUT.

SNAP-TREE, a ſpecies of Juſticia. See the article JUSTICIA.

SNEEZWORT, a ſpecies of Achillæa. See the article ACHILLÆA.

Auſtrian SNEEZWORT. See the article *Eternal* FLOWER.

SNOW-DROP, *Galanthus*, a genus of plants ranged by Linnæus among the *hexandria monogynia*. There is only one ſpecies, of which there is a variety with double flowers.

This plant is a native of the Alps. The root is a ſmall bulb, compoſed of many coats or ſkins, the outer one of which is blackiſh, the others white, and from the baſe run many long white fibres. The leaves and ſtalks riſe together, ſurrounded half their length by a white filmy ſcabbard. The leaves are long, narrow, and thick; and their colour is a deep green with a blueiſh tinge. Two of theſe naturally riſe more upright than the reſt, to defend and ſhield the lower part of the ſtalk: the others ſpread farther and droop. The ſtalk is angulated of a paler green, naked, and four or five inches high. Its top droops with the weight of a ſingle flower, which burſts from an oblong flatted ſcabbard.

Culture of the SNOW-DROP.

It is propagated by parting the roots, and for thoſe which are intended to flower earlieſt, let a warm ſheltered place be choſen, and a bed made up with the following compoſt:

A load of meadow-earth, half a load of pond-mud, and a quarter of a load of coarſe ſand, with the ſame quantity of rotted cow-dung. Let theſe be well mixed, and the border made up in the middle of Auguſt. Toward the end of the preceding May, let the roots be taken up, and planted in this border in bunches at eight inches diſtance, and buried two inches and a half in the mould, rake the ſurface over them; and thus let them remain till the end of October; then ſcatter over the bed a little marle and pigeon's dung mixed together. The rains that follow will waſh this in, and it will invigorate the roots juſt when they are required to ſhoot for flowering.

The double ſort requires no other culture; and the roots ſhould not be parted oftener than every third year.

Great SNOW-DROP, *Leucojum*, a genus of plants ranged by Linnæus among the *hexandria monogynia*, and of which there are only two ſpecies. 1. Great Snow-drop with a ſheath incloſing one flower, and a key-ſhaped ſtyle. 2. Great Snow-drop with many flowers in a ſheath, and a thread-like ſtyle.

Theſe plants are natives of Germany, Switzerland, and Italy. The root of the firſt ſpecies is a large bulb, which ſends out many fibres from the baſe. The leaves riſe ſix or eight from each root, enveloped with a whitiſh film at their bottoms, they are long, moderately broad, obtuſe at the end, and of a very fine green. The ſtalks riſe to about ten inches in height; they are of a paler green than the leaves, and ſomewhat edged; two or three riſe from each good root, and each is terminated by a ſingle flower. This is at firſt wrapped in a ſcabbard, which ſerves it as a kind of cup; and is thin and whitiſh in the middle, and thicker and green at the edges. When this burſts appears the flower, large, and drooping, from the ſlenderneſs of its footſtalk. The colour is ſnow-white, except at the tips of the petals, where there is on each a ſpot of very beautiful green.

The root of the ſecond ſpecies is large, round, and covered with a whitiſh membrane. The leaves are long, and of conſiderable breadth, ſharp-pointed, and of a fine deep green with a tinge of blueiſh. The ſtalk is thick, naked, hollow, of the ſame colour with the leaves but paler, and at its top appears the ſcabbard containing the flowers. This burſting on the inner ſide they throw themſelves out three or four from each head. They have long and very ſlender footſtalks, and their weight being too much for theſe tender ſupports to carry erect, hangs them drooping. They are formed like little bells, and in colour are of a perfect ſnow-white.

Culture of the Great Snow-Drop.

Theſe plants are propagated either by ſeeds or by off-ſets from the roots. If by ſeeds, thoſe of the beſt flowers ſhould be ſaved with care, and the latter end of Auguſt let them be ſown in a border facing the eaſt, where the mould has been dug out, and its place ſupplied with good black earth from under the turf in a fertile meadow; they ſhould be ſcattered at two inches diſtance, and covered half a quarter of an inch with the ſame mould; all the care they will then require is to be watered in dry weather, and to be kept clean from weeds.

When theſe ſeedlings have once flowered, they ſhould be treated with care according to their value. The beſt kinds are to be planted two inches and a half deep, and at ten inches diſtance; and all the care that is afterwards required for them is to keep the ground clear from weeds; and annually to take up the roots when the leaves are decayed, which will be in the beginning of June; and keep them in paper bags in an airy place till September; then planting them again in a border in the ſame ſituation, but with freſh mould. After this ſome roots may be left in the ground for off-ſets, and each year the fineſt flowers ſhould be marked for ſeed.

The off-ſets ſhould be planted the beginning of September in a border of the ſame mould, two inches and a half deep; and at ten inches diſtance, and when the plants come up, they require the ſame care as the ſeedlings.

SNOW-DROP, or FRINGE-TREE, *Chionanthus*, a genus of plants, of which there is only one ſpecies.

This ſhrub is a native of South Carolina, where it riſes to the height of ten feet. The leaves are about the ſize of the laurel, but of a thinner ſubſtance. The flowers grow in long bunches, and are of a pure ſnow-white; the petals are cut into narrow ſegments, which at ſome diſtance give the flowers the appearance of a delicate white fringe: they are ſucceeded by a black berry.

Culture of the Snow-drop Tree.

This tree is propagated by ſeeds, which muſt be procured from America, and ſown in ſmall pots filled with freſh loamy earth, and placed under a common hot-bed frame, where they may remain till the beginning of May, when they muſt be removed to a ſituation expoſed to the morning ſun only, and the following autumn they muſt be again placed under the hot-bed frame. In March the pots muſt be plunged into a moderate hot-bed, which will bring up the plants much ſooner than they will otherwiſe riſe, by which means they will get more ſtrength the firſt ſummer, and be better able to reſiſt the cold of the next winter.

In ſpring juſt before the plants begin to ſhoot, they ſhould be ſhaken out of the pots, and carefully ſeparated ſo as not to break off their roots, and each planted in a ſmall pot, filled with light loamy ſoil, and plunged into a very moderate hot-bed till they have taken root, after which they ſhould be gradually inured to the open air, and during the following ſummer the pots muſt be plunged into the ground in a ſituation where they may enjoy the morning ſun, and may be ſhaded from it at noon. The autumn following they ſhould be again placed under a hot-bed frame, but the air muſt be admitted to them at all times when the weather is mild. The April following the plants may be ſhaken out of the pots, with the ball of earth to their roots, and planted where they are deſigned to remain, which ſhould be in a ſoft, moiſt, loamy ſoil, and a ſheltered ſituation.

SOLDANEL, *Soldanella*, a genus of plants, of which there is only one ſpecies.

This plant grows naturally on the Alps, and other mountains in Germany. The root is fibrous. The leaves are of a dark green, and ſtand upon long foot-ſtalks. Between theſe the ſtalk of the flower riſes about four inches high, ſuſtaining at the top two ſmall flowers, whoſe brim is cut into many fine ſegments. Their colour is ſometimes blue, and ſometimes white.

There is a variety of this, which differs from it in having of leaves leſs round.

Culture of the Soldanel.

It is propagated by parting of the roots; the proper time for doing this is in September, when they ſhould be planted in a ſtrong cool loam, and a ſhady ſituation. When the plants come up they ſhould be kept clean from weeds.

SOLOMONS SEAL. See the article Lily *of the* Valley.

SOPEBERRY-TREE, *Sapindus*, a genus of plants, of which there are only two ſpecies. 1. Sopeberry-tree, with winged, running leaves. 2. Sopeberry-tree, with winged leaves.

Theſe trees are natives of the Indies. The firſt ſpecies riſes to the height of thirty feet. The leaves are compoſed of ſeveral pair of ſpear-ſhaped lobes. The mid-rib has a membranaceous border running on each ſide, from one pair of lobes to the other, which is broadeſt in the middle between the lobes. The flowers are ſmall and white: theſe are ſucceeded by oval berries, which incloſe a very ſmooth roundiſh nut, of a ſhining black when ripe.

The ſecond ſpecies does not riſe ſo high as the former, and differs from it in having no border or wing to the leaves.

Culture of the Sopeberry-tree.

Theſe plants are propagated by ſeeds, which ſhould be ſown in ſmall pots, and plunged into a hot-bed of tanners-bark. In five or ſix weeks the plants will appear, when the glaſſes of the hot-bed muſt be raiſed every day in warm weather. In three or four weeks they will be fit to tranſplant, when their roots muſt be carefully parted, and each planted into a ſeparate ſmall pot, and plunged into the hot-bed again, obſerving to ſhade them from the ſun till they have taken new root; after which they ſhould have free air admitted to them every day, when the weather is warm, and be frequently watered.

When theſe plants are well rooted, they ſhould be inured to the open air by degrees, and the plants of the firſt ſort ſhould be placed upon ſhelves in a ſtove, where the warmth is very moderate.

The plants of the ſecond ſpecies will live in the green-houſe in winter, and in ſummer may be expoſed to the open air.

SOPEWORT, *Saponaria*, a genus of plants, of which there are five ſpecies. 1. Sopewort, with oval, ſpear-ſhaped leaves. 2. Sopewort, with oval, veined leaves. 3. Sopewort, with oblong, oval, acute-pointed leaves. 4. Sopewort, with oval, ſpear-ſhaped leaves, half embracing the ſtalks. 5. Sopewort, with very ſmall leaves.

Culture of the Sopewort.

All theſe ſpecies are eaſily propagated by ſeeds, which ſhould be ſown where the plants are to remain, and they will require no other care than to be kept clean from weeds, and thinned where they riſe too cloſe. If the ſeeds are permitted to ſcatter in autumn, the plants will come up without care.

SOPHORA, a genus of plants, of which there are only three ſpecies. 1. Sophora, with winged leaves, and oblong, hairy lobes. 2. Sophora, with winged leaves, and roundiſh lobes. 3. Sophora, with trifoliate leaves, and round, ſmooth lobes.

The firſt ſpecies is a native of the Levant. The ſecond of the Weſt-Indies; and the third of Virginia.

Culture of the Sophora.

The firſt ſpecies is very hardy, and propagates itſelf faſt enough by its creeping roots, without any culture. Great care ſhould be taken not to let it ſtand near any other plants, which it would ſoon deſtroy. The beſt ſituation for it, is ſome abject part of the garden, where nothing elſe will grow.

The ſecond ſpecies is propagated by ſeeds, which muſt be procured from the Weſt-Indies, and ſown in pots, plunging them into a moderate hot-bed, where, if the ſeeds are good, the plants will appear in a month or ſix weeks. When they are fit to remove, they ſhould each be tranſplanted into a ſeparate pot, and ſet into a hot-bed of tanners-bark, where they muſt be ſhaded from the ſun till they have taken new root; after which they muſt be treated like other tender plants from the ſame countries, which always require to be kept in the bark-ſtove.

The third ſpecies is propagated by ſeeds, which ſhould be ſown the beginning of April on a warm border, in ſhallow drills; when the plants come up they muſt be kept clean from weeds, and in autumn, when the ſtalks decay, they ſhould be carefully taken up, and planted in a warm border where they are to remain.

SORREL, *Acetoſa*, a genus of plants ranged by Linnæus among the *hexandria trigynia*, and of which there are ſeveral ſpecies, moſt of them weeds growing naturally in this country, and never admitted into gardens: for thoſe which are, the following culture is proper.

Culture of the SORREL.

It is either propagated by ſowing the ſeeds early in the ſpring on a moiſt ſhady border, or by parting the roots in ſpring or autumn.

Wood SORREL, *Oxalis*, a genus of plants ranged by Linnæus among the *ſyngeneſia polygamia neceſſaria*, and of which there are thirteen ſpecies, but five of theſe only are cultivated in gardens; *viz:* 1. Wood Sorrel, with a foot-ſtalk ſupporting one flower, trifoliate leaves, and a bulbous root. 2. Wood Sorrel, with one flower on a foot-ſtalk, and ſtalks divided by pairs. 3. Wood Sorrel, with an umbelliferous ſtalk, and trifoliate leaves, divided into two parts. 4. Wood Sorrel, with a branching, diffuſed ſtalk, and umbellated foot-ſtalks. 5. Wood Sorrel, with a branching, upright ſtalk, and umbellated foot-ſtalks.

The firſt, ſecond, and third ſpecies are natives of Africa. The fourth of Italy and Sicily; and the fifth of Virginia.

Culture of the Wood SORREL.

The firſt, ſecond, and third ſpecies are propagated by off-ſets, which ſhould be planted in pots, and placed under a common frame in winter, where, in mild weather, they ſhould have as much free air as poſſible. The roots may be tranſplanted any time before the leaves decay till they come out again.

The fourth and fifth ſpecies are propagated by ſeeds, which ſhould be ſown on an open border.

The plants require no care: for if they are permitted to ſcatter their ſeeds, they will come up in great abundance.

SORROWFUL-TREE, a ſpecies of Arabian Jaſmine. See the article *Arabian* JASMINE.

SOUTHERNWOOD, *Abrotanum*, a genus of plants ranged by Linnæus among the *ſyngeneſia polygamia ſuperflua*, and of which there are ſeveral ſorts to be found in our gardens.

Culture of the SOUTHERNWOOD.

It is propagated either by ſlips or cuttings, which ſhould be planted about the end of March, on a bed of light freſh earth. If the weather proves dry, let them be moderately watered, and ſhaded in the middle of the day till they have taken root.

A few ſorts there are which muſt be kept in pots, and will require a green-houſe in the winter, but ſhould enjoy as much free air as poſſible in mild weather, and be now and then refreſhed with water.

SOWBREAD, *Cyclamen*. See the article CYCLAMEN.

SPADIX, properly ſignifies the receptacle of a palm, but in a more general ſenſe, it ſignifies the common receptacle of a flower.

SPARAGUS, or Aſparagus. See the article ASPARAGUS.

SPATHA, a ſort of calyx or cup, which conſiſts of a ſimple membrane, growing from the ſtalk. This kind of cup is of various figures, often diphyllous, or divided into two parts, often ſimple, ſometimes more divided. It incloſes ſometimes a flower, ſometimes ſeveral flowers together, and theſe have no perianthium. The Spatha is of a very different texture and conſiſtence in different plants.

SPEARMINT, a ſpecies of Mint. See the article MINT.

King's-SPEAR, *Aſphodelus*. See ASPHODELUS.

SPEARWORT, a ſpecies of Ranunculus. See the article RANUNCULUS.

SPEEDWELL, *Veronica*, a genus of plants ranged by Linnæus among the *diandria monogynia*, and of which he diſtinguiſhes no leſs than twenty-ſeven different ſpecies: but as ſeveral of them grow naturally in this country, and others are rarely admitted into gardens, it is needleſs to deſcribe them; we ſhall therefore only make mention of ten: *viz.* 1. Speedwell, with ſpikes of flowers terminating the ſtalks, and four or five leaves at each joint. 2. Speedwell, with ſpikes of flowers terminating the ſtalks, and three leaves equally ſawed, growing at each joint. 3. Speedwell, with ſpikes of flowers terminating the ſtalks, and three leaves unequally ſawed, growing at each joint. 4. Speedwell, with ſpikes of flowers terminating the ſtalk, and acutely-pointed, ſawed, ſpear-ſhaped, oppoſite leaves. 5. Speedwell, with ſpikes of flowers terminating the ſtalks, crenated, obtuſe, oppoſite leaves, and an erect, woolly ſtalk. 6. Speedwell, with a ſpike of flowers terminating the ſtalk, obtuſe, crenated, oppoſite leaves, and a ſingle aſcending ſtalk. 7. Speedwell, with a ſpike of flowers terminating the ſtalk, rough, obtuſe, ſawed, oppoſite leaves, and an erect ſtalk. 8. Speedwell, with ſpikes of flowers growing upon foot-ſtalks, and ſpringing from the ſides of the ſtalks, oppoſite leaves, and a trailing ſtalk, being the common male Speedwell or Fluellin. 9. Speedwell, with lateral bunches of flowers, oval, plain leaves, and a creeping ſtalk; commonly called Brooklime. 10. Speedwell, with lateral bunches of flowers, rough, heart-ſhaped, indented leaves, and a ſtrait ſtalk, or falſe germander.

All theſe are perennial plants; and the ſixth, ſeventh, eighth, and ninth ſpecies are natives of England.

Culture of the SPEEDWELL.

All the ſpecies are propagated by parting their roots at Michaelmas, and require no other care but to be kept clean from weeds, and to be tranſplanted every ſecond or third year.

They may be alſo propagated by ſeeds ſown in autumn in a ſhady border.

SPERMACOCE, a genus of plants of which there are only two ſpecies. 1. Smooth Spermacoce, with ſtamina included in the flower. 2. Spermacoce, with ſtamina ſtanding out of the flower.

Theſe plants grow naturally in moiſt places in Jamaica, where the inhabitants call the ſecond ſpecies Button-weed.

Culture of the SPERMACOCE.

Both theſe ſpecies are propagated by ſeeds, which ſhould be ſown upon a hot-bed; and when the plants come up they muſt be tranſplanted on a ſecond hot-bed, where they muſt remain till they have attained ſome height, after which they muſt be removed each into a ſeparate pot, and placed in the ſtove, where they muſt be treated in the ſame way as other tender plants.

SPIDERWORT, *Anthericum*, a genus of plants ranged by Linnæus among the *hexandria monogynia*, and of which there are nine ſpecies. 1. Spiderwort, with plane leaves, a branching ſtalk, and flowers turning backward. 2. Spiderwort, with plane leaves, a branching ſtalk, and plane petals. 3. Spiderwort, with plane leaves, and a ſingle ſtalk. 4. Spiderwort, with fleſhy, taper leaves, and a ſhrubby ſtalk. 5. Spiderwort, with fleſhy, plane, awl-ſhaped leaves. 6. Spiderwort, with awl-ſhaped, fleſhy, half taper leaves, growing cloſe. 7. Spiderwort, with awl-ſhaped, fleſhy, taper leaves. 8. Spiderwort, with ſword-ſhaped leaves, and downy ſtamina. 9. Spiderwort, with ſword-ſhaped leaves, a cup with three lobes, and ſmooth ſtamina.

The three firſt ſpecies are natives of the ſouthern parts of Europe. The fourth, fifth, and ſixth grow naturally at the Cape of Good Hope. The ſeventh in Ethiopia. The eighth upon bogs in the north parts of Europe; and the ninth grows upon the mountains of Switzerland, Lapland, and Siberia: but the two laſt are never preſerved in gardens but for the ſake of variety.

Culture of the SPIDERWORT.

The firſt, ſecond and third ſpecies are propagated by ſeeds, which ſhould be ſown in autumn on a bed of light ſandy earth, and in a warm ſituation. When the plants come up, let them be kept clear from weeds; and in autumn, when the leaves decay, be tranſplanted into another ſuch bed, at the diſtance of one foot. In this bed let them remain for one year, and in the following autumn they may be removed into the borders of the flower-garden.

In a ſevere winter, they will require to be covered with ſtraw, or ſuch light covering, to keep out the froſt; but if ſome old tan can be procured, and ſpread over the ground, it is preferable to any thing elſe.

The fourth fifth and ſixth ſpecies are propagated by off-ſets, which ſhould be planted in pots, filled with light ſandy earth, where they will ſoon take root, and muſt be treated like other ſucculent plants which come from the ſame country. In winter they muſt be placed in the green-houſe.

The ſeventh ſpecies is propagated by ſeeds, which ſhould be ſown on a warm border of light earth in April. The plants will only require to be kept clean from weeds, and thinned where they riſe too cloſe.

Savoy SPIDERWORT, a ſpecies of Lily Aſphodel. See the article LILY *Aſphodel.*

SPIGNEL, *Athamanta*, a genus of plants ranged by Linnæus among the *pentandria digynia*, and of which there are eight ſpecies. 1. Spignel with plane leaves doubly winged, an hemiſpheric umbel, and hairy ſeeds. 2. Spignel with pinnated, angular, cut leaves. 3. Spignel with divaricated leaves, called Oreoſelinum. 4. Spignel with the under leaves ſhining, the primordial umbels ſeſſile, and the ſeeds hairy. 5. Spignel with linear, plane, hairy leaves, the petals divided into two parts, and the ſeeds oblong, and hairy. 6. Spignel with the leaves divided into many narrow, roundiſh, pointed ſegments. 7. Spignel with membranaceous ſtriated ſeeds, and ſmooth leaves, more than decompounded, and cut into many ſegments. 8. Spignel with hair-like leaves, and ſmooth ſtriated ſeeds, called Meum.

The firſt ſpecies grows naturally upon dry ſtony fields in Sweden and Germany. The ſecond and fourth ſpecies are natives of Siberia, the third grows naturally upon hilly places in England, France, and Germany. The fifth is a native of Switzerland, and the eighth of the hills of Switzerland, Italy, and Spain. The ſixth grows naturally in Crete, but the native place of the ſeventh is uncertain.

Culture of the SPIGNEL.

The firſt, ſecond, third, fourth, fifth, and eighth ſpecies may be propagated, by ſowing their ſeeds ſoon after they are ripe, or by parting of the roots in autumn. They require a ſhady ſituation and a moiſt ſoil.

The ſixth and ſeventh ſpecies are alſo propagated by ſeeds, which ſhould be ſown in autumn upon an open bed of light dry ground. When the plants come up, they ſhould be thinned, and kept clean from weeds, which is all the culture they require.

SPIKE, a part of a ſtalk, thick ſet with flowers, or fruit, in ſuch a manner as to form an acute cone.

Ploughman's SPIKENARD, *Baccharis*, a genus of plants ranged by Linnæus among the *ſyngeneſia polygamia ſuperflua*, and of which there are ſix ſpecies. 1. Ploughman's Spikenard with ſpear-ſhaped leaves, ſawed and indented longitudinally. 2. Ploughman's Spikenard with oval ſpear-ſhaped, ſawed leaves, and a ſhrubby ſtalk. 3. Ploughman's Spikenard with ſpear-ſhaped leaves, and one or two ſawed denticles at the top. 4. Ploughman's Spikenard with ovated leaves, emarginated and crenated at the top, or groundſel-tree. 5. Ploughman's Spikenard with oval indented leaves. 6. Ploughman's Spikenard with ſpear-ſhaped, ſawed, and indented leaves, with a leafy corymbus.

Theſe are all ſhrubby plants. The firſt ſpecies is a native of Peru and Virginia; the ſecond and third of Africa; the fourth and ſixth of Virginia; and the fifth grows naturally in India, but is not to be found in our gardens.

Culture of the Ploughman's SPIKENARD.

The firſt, ſecond, and third ſpecies may be propagated either by cuttings or by ſeeds, but the beſt method is by cuttings, which ſhould be planted on a ſhady border, during any of the ſummer months. If they are raiſed from ſeeds, they ſhould be ſown in ſpring.

If planted in a warm ſituation, theſe ſhrubs will live abroad in mild winters; but they are uſually kept in green-houſes, and placed abroad in the ſummer.

The fourth and ſixth ſpecies are propagated by cuttings, planted on a ſhady border in any of the ſummer months, and watered properly in dry weather till they have taken root; and in autumn they may be tranſplanted to the places in which they are deſigned to remain.

SPINACH, or SPINAGE, *Spinacia*, a genus of plants ranged by Linnæus among the *dioecia pentandria*; and of which there are two ſpecies. 1. Spinach with prickly ſeeds. 2. Spinach with ſmooth ſeeds.

There are two or three varieties of the firſt ſpecies now cultivated in the kitchen-gardens, which differ in the ſize and ſhape of their leaves.

Culture of the SPINACH.

The ſeeds of the firſt ſpecies, which is by much the hardieſt, and therefore fitteſt to be cultivated for winter uſe, ſhould be ſown in Auguſt upon an open ſpot of rich, light, and well looſened ground, if poſſible, juſt before a ſhower of rain: but if rain does not fall in two or three days after the ſowing, the ground muſt be watered.

When the plants come up and have got good ſtrength, the ground ſhould be well hoed to deſtroy the weeds, and to thin the plants to the diſtance of three or four inches aſunder. This, like all other hoeings, ſhould always be performed in dry weather, the more effectually to kill the weeds: or, if it be rainy, they ſhould be carried off the ground as ſoon as they are cut up, to prevent their taking freſh root: for if many of them ſpring up, and the ſeaſon proves wet, they will ſtifle the plants of Spinach, and make them rot. A ſecond careful hoeing is therefore neceſſary in about a month or five weeks after the firſt; and with the help of this the ſpinach will begin to be fit for uſe by the end of October. The beſt way of gathering it is, to crop off only the largeſt outer leaves, and to leave the middle ones to grow bigger: for by this means a regular ſupply may be had during the whole winter, and even till the ſubſequent ſpring ſowing ſhall have produced plants large enough for uſe, which generally is in April. The winter Spinach will alſo then be ready to run up, and ſhould therefore be entirely cleared off, unleſs a parcel be left for ſeed, if wanted. But if early cabbages, which will want earthing up, have been planted among this Spinach, as is the uſual practice of the gardeners about London, a ſeparate ſmall ſpot of ground ſhould be allotted purpoſely for ſowing ſome of this Spinach for ſeed, without any other plants among it, and to cut up all the remains of the other winter crop, as ſoon as the ſpring Spinach is fit for uſe.

The oblong oval-leaved Spinach, commonly called Plaintain Spinach, which has thicker leaves and more ſucculent ſtalks than the former ſort, is ſown in the ſpring likewiſe upon an open ſpot of fine rich earth. The London gardeners, who always endeavour to have as many crops in a ſeaſon as they poſſibly can, generally mix radiſh ſeeds with thoſe of the Spinach which they ſow at this ſeaſon; but the beſt way for thoſe who have ground enough, is to ſow the Spinach ſeeds alone. This crop muſt be hoed, cleared from weeds, and thinned in the manner before directed for the winter Spinach; and when the plants which were at firſt left three or four inches aſunder, have grown ſo as to meet, it will be right to cut them out here and there for uſe, and to thin them in this manner, as they are wanted for the table, till thoſe that are left ſtand eight or ten inches aſunder. The thinnings in the mean time will give the remaining plants room to ſpread: and, if after the laſt, the ground between them is well ſtirred to a good depth, and kept perfectly clear from weeds; this ſort of Spinach will frequently produce leaves as large as thoſe of the broad-leaved dock, and extremely fine.

A ſucceſſion of Spinach may be had throughout the whole ſeaſon, by ſowing it every three weeks, from about the middle of January to near the end of May, only obſerving that the earlieſt ſowings muſt be upon the drieſt ſoil, and that the lateſt muſt be thinned moſt at their firſt hoeing, becauſe the remains of the former crops will furniſh a ſupply till theſe are full grown, and the plants will not be ſo apt to run up to ſeed when they ſtand at a diſtance from each other, as when they are cloſe together.

In order to have good ſeeds of Spinach, each particular ſort ſhould be ſown by itſelf, in an open ſpot of rich, well-dug ground. This ſowing ſhould be in February, as ſoon as the danger of froſt is over: and when the plants are come up, they ſhould be thinned with a hoe till they are ſix or eight inches aſunder every way. All weeds at the ſame time ſhould be carefully cut up, and carried away: and in about three weeks or a month after this, the plants ſhould be hoed and thinned a ſecond time. Their diſtance from each other ſhould then be enlarged to at leaſt twelve or fourteen inches: for they will cover the ground very ſufficiently after they have ſhot out their ſide branches. Particular care is requiſite at this time to keep them very clear from weeds, becauſe they would make the plants of Spinach run up very weak, and thereby greatly injure them.

When the plants run up to flower there will be found among them male and female, which may be eaſily diſtinguiſhed, as the male plants will produce ſpikes of ſtamineous flowers; theſe contain the farina which are to impregnate the female plants, ſo as to render the ſeeds prolific; therefore they ſhould not all, as is the common method, be pulled up, but a few of them left in every part of the ground.

When the ſeeds begin to ripen they muſt be guarded from birds: and when they are thoroughly ripe, which is known by their changing their colour, and beginning to ſhed, the plants ſhould be drawn up, and ſpread upon cloths for a few days, to be compleatly dried by the heat of the ſun, turning them every other day: and when they are quite dry they ſhould be threſhed out, well cleaned, and laid up in a dry place, where mice cannot come at them.

SPINDLE-TREE, or PRICKWOOD, *Euonymus*, a genus of plants ranged by Linnæus among the *pentandria monogynia*, and of which he diſtinguiſhes only two ſpecies. 1. Spindle-tree, the greateſt part of whoſe flowers are divided into four points; or the common Spindle-tree. 2. Spindle-tree, with all the leaves cut into five points.

Both theſe are ſhrubby plants. The firſt grows naturally in the hedges in moſt countries in Europe, and particularly in England: of this ſort there are two varieties, the narrow-leaved, and the broad-leaved Spindle-tree.

The ſecond ſpecies is a native of North-America. It is an evergreen ſhrub, which flowers in July, but never produces fruit in this country.

Culture of the SPINDLE-TREE.

The firſt ſpecies may be propagated either by ſeeds or by layers: if by ſeeds, they ſhould be ſown in autumn ſoon after they are ripe, and then the plants will come up the ſpring following; but if the ſeeds are not ſown till ſpring, the plants will not appear till the next year; they require a ſhady border, and when the plants come up they muſt be kept clear from weeds till the following autumn: then, as ſoon as their leaves decay, they ſhould be taken up and tranſplanted into a nurſery, in rows two feet diſtant, and one foot aſunder in the rows: here they may ſtand two years, and then be removed to the places in which they are deſigned to remain.

When theſe plants are propagated by layers, the young ſhoots ſhould be laid down in autumn, and if the joint which is laid deepeſt into the ground is ſlit, it will cauſe them to put out roots much ſooner than they otherwiſe would do. In a year's time the layers will be ſufficiently rooted to bear tranſplanting, when they may be treated in the ſame way as the ſeedlings.

The cuttings of theſe ſorts planted in a ſhady border will take root, but they ſhould be planted in autumn, as ſoon as their leaves begin to fall. They ought to be ſhoots of the ſame year, with a knot of the former year at bottom.

The plants of the ſecond ſpecies muſt be obtained from the place where it is native, and on their arrival they ſhould be planted in pots, and plunged into the tan-bed, where they muſt be treated like other plants from hot countries.

SPIRÆA, a genus of plants ranged by Linnæus among the *icoſandria pentagynia*, and of which there are eleven ſpecies. 1. Spiræa, with ſpear-ſhaped, obtuſe, naked, ſawed leaves, and flowers in double branching ſpikes; commonly called Spiræa, Frutex, or Shrubby Spiræa. 2. Spiræa, with ſpear-ſhaped leaves, unequally ſawed, and woolly on their under-ſide, and flowers growing in doubly branching bunches; or the Meadow-ſweet of Virginia. 3. Spiræa, with intire leaves, and umbels of flowers ſitting cloſe to the branches; or the Shrubby Hypericum. 4. Spiræa, with oval, cut, ſawed, ſmooth leaves, with umbels of flowers growing upon foot-ſtalks. 5. Spiræa, with oblong leaves, the points of which are ſawed, and flowers growing in a corymbus on the ſides of the branches. 6. Spiræa, with lobated, ſawed leaves, and flowers growing in a corymbus, terminating the ſtalk; or the Opuliſolia, commonly called Virginia Guelder Roſe, with a curran leaf. 7. Spiræa, with winged leaves, uniform, ſawed lobes, a ſhrubby ſtalk, and flowers growing in panicles. 8. Spiræa, with more than decompounded leaves, paniculated ſpikes, male and female flowers; or the Aruncus, Barba Capræ. or Goat's Beard. 9. Spiræa, with winged leaves, uniform, ſawed lobes, an herbaceous ſtalk, and flowers growing upon ſlender foot-ſtalks at the top, being the common Dropwort. 10. Spiræa, with winged leaves, the outer lobe of which is greater and is divided into lobes, and flowers growing in bunches on ſlender foot-ſtalks; being the Meadow-ſweet, or Queen of the Meadows. 11. Spiræa, with trifoliate, ſawed, and almoſt equal leaves, and flowers growing in a kind of panicle.

Theſe are all ſhrubby plants. The firſt grows naturally in Siberia and Tartary. The ſecond in Philadelphia. The third ſpecies is a native of Canada. The fourth, fifth, and ſeventh of Siberia; and the ſixth, eighth, ninth, tenth, and eleventh of North-America.

Culture of the SPIRÆA.

The firſt, ſecond, ſixth, and ſeventh ſpecies, may be propagated by ſuckers from the ſtems of the old plants, or by laying down the tender branches, which, when rooted, ſhould be tranſplanted out in rows, at the diſtance of three feet one from another, and the plants about a foot aſunder in the rows. In this nurſery let them remain two years, in which time the ground ſhould be kept clear from weeds, and that between the rows ſhould be dug up in the ſpring. If the plants put out ſuckers from the roots, they ſhould be taken off, and afterwards the plants ſhould be removed to the places where they are deſigned to remain, which ſhould be either in ſmall wilderneſs quarters, or in clumps of flowering ſhrubs.

The third, fourth, and fifth ſpecies may be propagated by laying down the under branches, which when they have taken root, may be cut off, and tranſplanted into a nurſery, where they may be managed in the manner directed for the preceding ſorts.

The eighth ſpecies may be propagated by parting of the roots in autumn: it thrives beſt in a moiſt ſoil and a ſhady ſituation; but this, and the ninth and tenth ſpecies are ſeldom cultivated in gardens.

The eleventh ſpecies is propagated by ſeeds, which ſhould be ſown in a ſhady border ſoon after they are ripe. When the plants are come up let them be kept clear from weeds, and in the autumn after the leaves begin to decay, they muſt be either tranſplanted to the places where they are deſigned to remain, or planted in a nurſery border, where they may ſtand a year or two. They ſhould have a moiſt ſoil and a ſhady ſituation.

SPURGE, a ſpecies of the Burning Thorny Plant. See the article *Burning Thorny* Plant.

SPURGE LAUREL, *Daphne.* See the article Daphne.

SQASH, a ſpecies of the Gourd. See the article Gourd.

SQILL, *Scilla*, a genus of plants ranged by Linnæus among the *hexandria monogynia*, and of which there are eight ſpecies. 1. Squill, with a coated root. 2. Squill, with a ſcaly root. 3. Squill, with a ſolid root, and an hemiſpherical corymbus of flowers. 4. Squill, with a ſolid root, and a conical corymbus of flowers; commonly called Hyacinth of Peru. 5. Squill, with a ſolid root, and flowers growing alternately from the ſides of the ſtalk, almoſt nodding. 6. Squill, with a ſolid root, and erect flowers growing thinly. 7. Squill, with a ſolid root, ſlender, linear leaves, flowers growing in a corymbus, and naked foot-ſtalks riſing over each other to the length of the flowers. 8. Squill, with a thick, roundiſh, ſpiked leaf.

Theſe are all perennial plants. The firſt ſpecies is a native of Spain, Sicily, and Syria, growing on the ſea-ſhores, and in ditches where the ſalt water flows in with the tide, and is never cultivated in gardens.

The ſecond ſpecies grows naturally in ſome parts of Spain, France, and the Pyrenees; the third, fourth, and eighth in Portugal; the fifth in Byzantium; the ſixth in France and Germany; and the ſeventh in ſeveral parts of England.

Culture of the Squill.

Theſe are all hardy plants, and may be propagated by ſeeds or off-ſets; the ſeeds ſhould be ſown in autumn ſoon after they are ripe, either in ſhallow boxes or pans, and treated in the ſame manner as was directed for the hyacinths; but the moſt expeditious way of propagating them, and that moſt generally practiſed, is by off-ſets: the roots ſhould be tranſplanted after the leaves are decayed, and they may be in other reſpects treated like the ſeedling plants.

STÆHELINA, a genus of plants of which there are only two ſpecies. 1. Stæhelina, with woolly leaves. 2. Stæhelina, with almoſt three-cornered leaves.

Both theſe plants are natives of the Cape of Good Hope.

Culture of the Stæhelina.

Both ſpecies are propagated by cuttings, which, if planted in any of the ſummer months, and covered cloſe with a bell or hand-glaſs, will ſoon take root, after which they ſhould be taken up carefully, and planted in pots filled with light, freſh earth, but not over rich, and placed in the ſhade till they have taken new root. In autumn they muſt be removed into an airy glaſs-caſe, where they muſt remain all the winter.

STALK, that part of a plant which riſes immediately from the root, and which ſupports the flowers and the fruit. The term ſtalk is uſed on all occaſions; but in ſpeaking of graſſes and gramineous plants, the word culm is uſed in its place, to diſtinguiſh that peculiar kind of ſtalk, which is general to all theſe plants, and is not found in any other.

The terms uſed in deſcribing the ſtalk of a plant, are,

1. *Simple* Stalk, one which runs up undivided from the root to the top: this is called *naked* when it has no leaves; *folioſe*, when it has leaves on; *ramoſe*, when it ſends out branches; *erect*, when it riſes up ſtrait; *oblique*, when ſlanting; *voluble*, when it twiſts round other things; *flexous*, when it bends; *reclinate*, when it ſtoops toward the ground; *procumbent*, when it lies on the ground; *creeping* and *ſarmentous*, when it emits roots as it runs along.

2. If the Stalk be rounded in ſhape, it is called *round*; if it makes two angles, *ancipital*; if three, *trigonal*; if four, *ſquare*; if more, *polygonal*; if it be lightly ridged, and furrowed on the ſurface, it is ſaid to be *ſtriated*; if more deeply ſo, *caniculated*, or *channelled*; if full of protuberances, *ſcabrous*; if lightly hairy, *villoſe*; if more roughly ſo, *triſpid*.

3. In the *branched* Stalk, if the branches riſe erect, it is expreſſed by *aſcendent*; if they ſpread, by *diffuſe*; if they are very large, it is called *brachiated*.

4. If the ſtalk divaricate, or inſtead of ſending out branches, divides into them, it is called a *compoſite ſtalk*; if theſe divarications proceed by pairs, or every branch is divided into two others, it is *dichotomous*; if it part into two ſeries of branches, it is expreſſed by the term *diſtichous*; if it parts into a multitude of ramifications, *ſubdivided*. All theſe terms are uſed in expreſſing the different ſtate of the culm. When a ſtalk has no articulations, it is called *equal*, when ſcaly, *ſquamoſe*.

STAMINA, the male parts of a flower, or its male organs of generation. Linnæus defines the Stamina the entrail of the plant, deſigned for the preparation of the pollen. See Pollen.

Each ſtamen conſiſts of two parts. 1. The filament or thread, which ſerves to elevate the anthera or ſummit, and at the ſame time connects it with the flower. 2. The anthera, or ſummit itſelf, which contains within it the pollen, and when come to maturity, diſcharges the ſame.

The ſtamina being the male part of the flower, the conſtruction and diſtribution of the ſexual ſyſtem, is principally founded upon, and regulated by them. Such flowers as want the ſtamina, are called female flowers: ſuch as have the ſtamina, but want the piſtillum, or female part, male flowers: ſuch as have them both, hermaphrodite flowers; and ſuch as have neither, neuter flowers.

Mr. Tournefort takes the uſe of the ſtamina to be, as it were, ſo many excretory canals for diſcharging the growing embryo of its redundant juices; and of theſe excrements of the fruit, he takes that farina, or duſt, found in the apices, to be formed. But other writers, as Geoffroy, and Linnæus in particular, aſſign the ſtamina a nobler uſe: theſe authors, explaining the generation of plants in a manner analogous to that of animals, maintain the uſe of the ſtamina to be that of ſecreting, in their fine capillary canals, a juice, which being collected, hardened, and formed into a farina, or duſt, in the tops of the apices, is thence, when the plant arrives at maturity, diſcharged by the burſting of the apices upon the top of the piſtil, whence is a paſſage for it to deſcend into the uterus, where being received, it impregnates and fecundifies the plant. See Botany, Generation *of Plants*, Farina, and Pistil.

On this principle it may be ſaid, that the ſame flower contains both ſexes, which contributes each their part to the generation: that the ſtamina are the male part, and the farina, which is always found of an oily glutinous nature, the ſeminal liquor; and that the piſtil is the female part, which conducts the ſemen to the ova or embryos.

Among the writers of the preſent age, who oppoſe this doctrine, is Dr. Alſton, late profeſſor of botany at Edinburgh, who, in an expreſs diſſertation on the ſexes of plants, publiſhed in the Phyſical Eſſays, undertakes to overthrow all the arguments in favour of the ſexes of plants, by repeated experiments. This author, conſidering that there are ſeveral ſpecies of vegetables which bear flowers on one plant, and ſeeds on another, as *ſpinacia*, *mercurialis*, *cannabis*, &c. in order to determine the controverſy, thought of training up one or more of theſe ſeed-bearing plants at a ſufficient diſtance from thoſe that carry flowers, and obſerving the conſequence. Accordingly in ſpring 1737, he tranſplanted three ſets of the common ſpinach, long before it could be known whether they were flowering or ſeed-bearing plants from a little bed, on which it was raiſed, into a place of the garden full eighty yards diſtant, and almoſt ſouth, there being two hawthorn and three holly-hedges, all very thick and tall, between them and their ſeed-bed, and no other ſpinach in the garden, or near; theſe we are told proved all fertile plants, and ripened plenty of ſeeds; and that theſe ſeeds, being ſown, grew, and proſpered, as well as any ſpinach could do.

The ſame author in ſpring 1741, made other ſeparate experiments on the common hemp, and the French mercury; each of which plants, notwithſtanding they were planted in a very high incloſure, many hundred yards diſtant from any other of the ſame claſs of plants, he aſſures us, ripened fertile ſeeds.

STAMINEOUS, a term uſed by botaniſts; for thoſe flowers of plants which have no petals, or flower-leaves, but conſiſt only of a number of ſtamina and piſtils, placed in a cup. This cup is ſometimes miſtaken for a flower, and its leaves thought to be true petals, but they remain when the ſtamina are fallen, and become the capſules, containing the ſeed; which, according to Tournefort, is the true character of a cup, not of a flower.

STANDARD, or VEXILLUM, the name of a petal in papilionaceous flowers, placed above the carina, or keel, and covering the other petals. See the articles Papilionaceous, Keel, and Alæ.

STANDARD-TREES. See the article Trees.

STAR *of Bethlehem.* See the article *Star* Flower.

STARWORT. See the article Aster.

STELLATE PLANTS, thoſe whoſe leaves grow not leſs than ſix at a joint, and are arranged like the rays of a ſtar.

STIGMA, the ſummit of the piſtil, which is covered with a moiſture for the breaking of the pollen. See the article Pistil.

STOCK JULY-FLOWER, or GILLY-FLOWER, *Cheinanthus*, a genus of plants ranged by Linnæus among the *tetradynamia ſiliquoſa*, and of which there are ten ſpecies. 1. Stock with ſpear-ſhaped, indented leaves, an erect ſtalk, and four cornered pods. 2. Stock with ſpear-ſhaped, acute, ſmooth leaves, being the common yellow Leucojum, or Wall-flower. 3. Stock, with ſpear-ſhaped, indented leaves, and pods with awl-ſhaped points. 4. Stock with ſpear-ſhaped, intire, obtuſe, hoary leaves, compreſſed pods with truncated points, and a ſhrubby ſtalk, commonly called the Queen's Stock Gilly-flower. 5. Stock with ſpear-ſhaped, indented, obtuſe, hoary leaves, cylindric pods with acute points, and an herbaceous ſtalk, commonly called Ten-weeks Stock. 6. Stock with narrow, ſinuated leaves, ſeſſile flowers with waved petals, and a ſhrubby ſtalk. 7. Stock with indented, obtuſe leaves, ſmooth cups, and knotty pointed pods. 8. Stock with lacerated, indented, pointed leaves, hairy cups, and knotty pointed pods. 9. Stock with the points of the pods indented into three parts. 10. Stock with leaves which grow cloſe together in heads, turn backward, and are waved.

Theſe plants are all natives of different parts of Europe. The third, fifth, ſeventh, eighth, and ninth ſpecies, are annuals. The firſt, ſecond, and tenth, are biennials, and the reſt are perennial plants. One rule of culture ſerves for the production and preſervation of all the ſpecies, and their innumerable varieties.

Culture of the Stock-July-Flower.

They are all to be propagated by ſeeds; the beſt time for ſowing them is in the beginning of April, upon a border of freſh light earth, where they may enjoy the morning ſun; for if they are expoſed to too much ſun, or ſown on too dry a ſoil, they are uſually deſtroyed while young by a ſort of fly; and the only way to guard againſt this is, to ſow a few radiſhes on the ſame ground, for the flies being very fond of their leaves, will leave thoſe of the ſtocks untouched; but the radiſhes muſt not ſtand too thick, for it would weaken the plants.

When the young plants have got about ſix leaves, they ſhould be tranſplanted to borders of light earth, where they may alſo enjoy the morning ſun; and here they ſhould ſtand at four inches diſtance, and be watered and ſhaded till they have taken root; and in the latter end of Auguſt following they may be tranſplanted to the places in the flower-garden where they are to remain, and they will flower the ſucceeding ſpring. This laſt tranſplanting ſhould, if poſſible, be done in a wet ſeaſon.

As theſe are moſtly annual and biennial plants, they ſhould be ſown every year; and it is an excellent method to exchange ſeeds annually with a perſon who raiſes good flowers at a diſtance from you.

They may alſo be propagated by ſlips and cuttings: but they never are ſo ſtrong, or flower ſo well as when raiſed from ſeeds.

STOEBE, a genus of plants of which there is only one ſpecies.

This plant is a native of the Cape of Good Hope. It riſes with a ligneous ſtalk, three feet high. The leaves are ſhort, hooked, and of a greyiſh colour. The flowers grow at the ends of the branches, and are of a yellow colour.

Culture of the Stoebe.

It is propagated by cuttings or ſlips, which ſhould be planted in July upon a bed of ſoft loam, and covered cloſe down either with a bell or hand-glaſs, ſhading them every day from the ſun till they taken root: then they muſt be gradually inured to the open air, and afterwards taken up and planted in pots, placing them in the ſhade till they have taken new root; then they may be placed in a ſheltered ſituation with other tender exotic plants, and in autumn they muſt be removed into ſhelter, for they are too tender to live through the winter in the open air.

STOECHAS, a genus of plants of which there are three ſpecies. 1. Stoechas, with ſpear-ſhaped, linear leaves, and ſhort foot-ſtalks to the flowers. 2. Stoechas, with ſpear-ſhaped, linear leaves, and long foot-ſtalks to the flowers. 3. Stoechas, with winged, indented leaves.

Theſe plants are all natives of Spain: and the firſt likewiſe of the ſouth of France.

Culture of the Stoechas.

The firſt and ſecond ſpecies are propagated by ſeeds, which muſt be ſown in March, on a bed of light dry ſoil, and when they come up they ſhould be carefully cleared from weeds until they are two inches high, at which time they ſhould be removed; and, for which there muſt be a ſpot of light dry ground prepared, and laid level, which muſt be trodden out in beds, into which the plants ſhould be planted at about five or ſix inches diſtance each way, obſerving to water and ſhade them till they have taken root, after which they will require no further care but to keep them clear from weeds the following ſummer: but, if the winter ſhould prove ſevere, it will be proper to cover them with mats, to guard them againſt the froſts, which otherwiſe would be apt to injure them while they are ſo young; but in March, or the beginning of April, the following ſpring, they muſt be removed into the places where they are to remain, obſerving, if poſſible, to tranſplant them in a warm moiſt ſeaſon, and not to let them remain long above ground, for if their roots are dried they ſeldom grow well after.

The third ſpecies is propagated by ſlips or cuttings, which if planted in April will take root very freely; and when rooted, muſt be planted in pots, that they may be ſheltered from ſevere froſt in winter, for they are too tender to live in the open air through the winter in England, eſpecially while they are young: but when they have obtained ſtrength, ſome of them may be turned out of the pots, and planted in a warm ſituation, upon a dry rubbiſhy ſoil, where they will be ſtinted from growing too vigorouſly, ſo will endure the cold much better than if they were growing in better ground.

STONE CROP. See the article *Leſſer* Houseleek.

STONE CROP-TREE, a ſpecies of Gooſe-foot. See the article Goose-foot.

STORAX-TREE, *Styrax*, a genus of plants ranged by Linnæus among the *dodecandria monogynia*, and of which there is only one ſpecies.

This plant is a native of Syria, Judæa, and Italy. It riſes with a woody ſtalk twelve or fourteen feet high. The leaves are oval, of a bright green on their upper ſide, and hoary on their under. The flowers, which are white, grow in bunches, and are ſucceeded by roundiſh berries.

Culture of the Storax-tree.

It is propagated by ſeeds, which, toward the latter end of ſummer, muſt be ſown in pots filled with freſh, light earth, and plunged into a moderate hot-bed. When the plants are come up they ſhould be gradually inured to the open air, into which they ſhould be removed in June, placing them in a ſheltered ſituation, where they muſt be kept clean from weeds, and watered in dry weather. In autumn ſet them under a common hot-bed frame, where they may be ſecured from hard froſts in winter, and enjoy as much free air as poſſible in mild weather.

In the ſpring, before the plants begin to ſhoot, they ſhould be ſhaken out of the pots, and their roots carefully parted, tranſplanting each into a ſeparate ſmall pot filled with freſh, light earth, and plunged into a very moderate hot-bed, where they muſt be watered and ſhaded till they have taken new root, after which they ſhould be hardened by degrees to the open air, in which they may be placed in June, and about the end of October they muſt be removed into ſhelter for the winter ſeaſon.

After the plants have been in the pots four years, they may be turned out of them, and planted in the full ground againſt a wall with a ſouth aſpect, to which their branches ſhould be trained, as is practiſed with fruit trees: but in very ſevere froſts it will be proper to cover the branches with mats, ſtraw, or other light covering.

STOVE. See the article HOT-HOUSE.

STRAWBERRY, *Fragaria*, a genus of plants ranged by Linnæus among the *icoſandria polyginia*, and of which there are four ſpecies. 1. The Wood Strawberry. 2. The Scarlet Strawberry. 3. The Hautboy Strawberry. 4. The Chili Strawberry.

The firſt ſpecies is a native of England. The ſecond of Virginia; and the third and fourth of America.

Culture of the STRAWBERRY.

All the ſpecies and varieties of Strawberries may be raiſed from ſeeds: but the common, and moſt expeditious way of propagating them is from their runners, which eaſily take root at their joints, and there form plants, which, in two or three months, are fit to be cut off and tranſplanted. Thoſe which root earlieſt in the ſpring, and neareſt to the mother plant, are the fitteſt for this purpoſe: and the beſt time for removing them is in October, that they may get new roots before the hard froſts ſet in. They ſhould never be taken from old neglected beds, where the plants have been ſuffered to run into a multitude of ſuckers, nor from any but the moſt fruitful plants.

The ground in which they are planted muſt be well dug, and very carefully cleared of weeds; and when it is levelled, it ſhould be marked out into beds three feet and an half, or at moſt four feet wide, leaving a path-way of two feet, or two and an half broad between them. Theſe paths are neceſſary for the convenience of gathering the fruit, for weeding and dreſſing of the beds, and, which is of eſſential conſequence to plants that remain ſo long in the ground as theſe do, to be frequently dug up, in order to lay fine freſh earth to the roots of the plants.

Of the wood-ſtrawberry, four rows may be planted, in a quincunx order, at about eight inches from each other in the rows, and a foot diſtance from row to row, in the beds that are four feet wide: but three rows in a bed three feet wide will do much better, becauſe they will be more benefited by the digging of the alleys. The ſcarlet ſtrawberry muſt be planted at a foot diſtance every way, and the hautboy at ſixteen inches. The Chili ſtrawberry, which is the largeſt of all, muſt be ſet about two feet diſtance from plant to plant: this laſt is found to ſucceed beſt under the ſhade of the trees, in a very ſtrong brick earth, approaching nearly to clay: but it ſeldoms perfects its fruit here, ſo as to anſwer the trouble of cultivation.

If the winter prove ſevere, ſome old tanner's bark, or if that cannot be eaſily procured, ſaw-duſt, ſea-coal aſhes, or decayed leaves of trees, ſhould be ſpread over the ſurface of the bed, between the plants, to keep out the froſt. This care is abſolutely neceſſary to the Chili ſtrawberry, which is frequently killed in hard winters.

In the ſpring, after the danger of hard froſt is over, the ground between the plants in the beds ſhould be forked with a narrow three-pronged fork, to looſen it and break the clods: and if the tan, or other covering, which was laid on in the autumn, is then mixed with and buried in the earth, it will be of ſervice to the plants, eſpecially in ſtrong land. A covering of moſs ſpread over the beds about the latter end of March, or the beginning of April, will not only keep the ground moiſt, by preventing the drying winds of the ſpring from penetrating it, and thereby contribute greatly to ſecure a good crop of fruit; but it will alſo preſerve the fruit clean from that grit which is often thrown up by heavy rains after it is full grown, to the great detriment of its flavour, becauſe it muſt then be waſhed before it can be eaten.

When the plants begin to flower, they muſt be watered very plentifully if the ſeaſon is dry, and great care muſt be taken to keep them clear from weeds. At Michaelmas the beds ſhould be forked again, the weedings ſhould be repeated carefully, the alleys ſhould be dug, and the weeds deſtroyed, all the ſtrings or runners muſt be taken from the roots, and the plants ſhould be thinned, by pulling up the weakeſt, wherever they ſtand too cloſe together. The throwing of a little fine earth over them, at that time, will alſo greatly ſtrengthen their roots.

As theſe beds ſeldom continue good above three years, in the common way of managing them, and as they yield but little fruit the firſt year; it is neceſſary to new plant ſome freſh ground every third year. When this is done, the old beds may be deſtroyed, and the ground converted to ſome other uſe, after the new ones have had one year's growth. But that ſtrawberry beds may be made to yield good crops even for ſome years longer than the abovementioned uſual term of their duration, is perhaps more than probable, if they are cultivated according to the principles of what is called the new huſbandry.

The indefatigable M. de Chateauvieux, among his numerous and judicious trials of that huſbandry, upon different plants, applied it to ſtrawberries, of which he planted ſeveral beds of well and deeply looſened earth, ſix feet wide, with ſingle rows. The vigour of the plants, the largeneſs of their leaves, and the very great number of their roots, though cultivated only by ſtirring of the ground with the horſe-hoe, without the leaſt help of dung, manure of any kind, or watering even in the drieſt weather, gave him room to expect, before the firſt ſummer was over, that their fruit would be very large and plentiful the next year: nor was he diſappointed; for in 1754, which was their ſecond year, his ſtrawberries were admirable, extremely large, finely ſcented, and of a very high flavour. He continued the ſame method in 1755 and 1756, and with the ſame ſucceſs as before. In ſhort, though the year 1755 was ſo extremely hot and dry, that no watering could well ſuffice to keep alive the plants that were managed in the common way; theſe remained conſtantly green, and in great vigour, and their fruit was, in every reſpect, finer than that on which the utmoſt care was beſtowed in his kitchen garden.

An ingenious writer in the Muſeum Ruſticum has obliged the world with the following method of cultivating ſtrawberries.

“I have them, ſays he, of ſeveral kinds; and the fruit, in the ſeaſon, is in great perfection, being large, and poſſeſſing a fine flavour. Theſe I procure with no great trouble or difficulty in the cultivation.

“I plant them in regular rows on beds three feet wide. The ſoil I chooſe for them is a good, natural, freſh, rich loam: the leſs it requires of manure the better, the fruit being the ſweeter and finer.

“On each of theſe beds above-mentioned, I plant three rows of plants, in quincunx order, at fifteen inches diſtance every way; and I rather chooſe to plant them each on a little hillock, as it were, ſomething in imitation of hops.

“Between the beds are intervals of the ſame width.

“My next care is, by frequent hoeing, to keep my plants as clear from weeds as poſſible, by which they are ſure to be ſupplied with plenty of nouriſhment; a matter of great conſequence, particularly when the fruit is ſet, as then they require moſt, and the weeds are alſo at that ſeaſon moſt luxuriant: I therefore then ſtir the earth with the hoe often, which anſwers, as I ſaid before, a double purpoſe.

" I obſerve to keep my plants as clear as poſſible from runners; by which means my fruit is larger, and ſooner ripe, than it would otherwiſe be.

" When my ſtrawberry plants have borne fruit two ſucceſſive years on the beds, I get the alleys, or intervals, dug up and prepared, into which I tranſplant them in the ſame manner they were planted in the firſt-mentioned beds, which then become in their turn the intervals.

" Here they remain two years more, when I again remove them into freſh land prepared for the purpoſe, in this manner never letting them bear fruit more than two years in one ſpot.

" I cannot eaſily deſcribe to you the great benefit this method of management is of to the plants, which are thereby greatly invigorated, and the fruit prodigiouſly improved, both in point of ſize and flavour, inſomuch that they appear to be quite of a different nature from thoſe of my neighbours, who firſt furniſhed me with the plants."

STRAWBERRY BLITE. See the article BLITE.

STRAWBERRY SPINACH, a ſpecies of Blite. See BLITE.

STRAWBERRY-TREE, *Arbutus*. See the article ARBUTUS.

STROBILUS, a ſort of pericarpium, formed of a number of vaginæ, with contorted points applied cloſe to one another.

STYLE, is a part of the piſtil of plants, and is of various figures, but always placed on the germen: it gives origin to the ſtigma. In ſome plants it is extremely ſhort, and in others it ſeems entirely wanting. See the articles PISTIL, STIGMA, and GERMEN.

SUCCORY, *Chichorium*, a genus of plants ranged by Linnæus among the *ſyngeneſia polygamia æqualis*, and of which there are three ſpecies. 1. Succory with a ſingle ſtalk, and indented, ſinuated leaves. 2. Succory with a ſingle ſtalk, and entire crenated leaves, or common endive. 3. Succory with a prickly ſtalk divided by pairs.

The firſt ſpecies grows naturally by the ſides of roads, and in ſhady lanes in this and moſt other countries of Europe, and is never admitted into gardens.

For an account of the ſecond ſpecies, ſee ENDIVE: to which article we alſo refer the reader, for the culture of the third ſort; as it is proper for it in every reſpect.

SUCCULENT PLANTS, ſuch whoſe leaves are thick, and abound with juice.

SULPHUR-WORT. See the article HOGS-FENNEL.

Sweet SULTAN, a ſpecies of Centaury.

This plant is a native of Tartary, and riſes with a round channelled ſtalk near three feet high. The leaves are jagged, ſmooth, and of a pale green. The flowers grow from the ſides of the branches; they have a very ſtrong odour, and their colour is ſometimes white, ſometimes fleſh-colour, and at others purple.

There are two varieties of this plant, the firſt having fiſtular flowers; and the ſecond with fringed flowers, commonly called Amberboi, or Emberboi.

Culture of this Sweet SULTAN.

It is propagated by ſeeds, which ſhould be ſown on a hot-bed in the ſpring, and when the plants have obtained ſome ſtrength, they may be tranſplanted into the borders of the flower-garden. The ſeeds may alſo be ſown on a warm border in autumn, and the plants removed in the ſpring into the flower-garden.

Yellow Sweet SULTAN, another ſpecies of Centaury.

This plant has greatly the appearance of the former, but requires a different culture as being much more tender.

Culture of the Yellow Sweet SULTAN.

The ſeeds of this plant muſt be ſown in the ſpring upon a hot-bed, and when the plants are fit to remove, they ſhould be tranſplanted on a freſh hot-bed. When the plants have obtained ſome ſtrength, they muſt be carefully taken up, and planted in ſeparate pots, filled with light earth, and placed in the ſhade till they have taken root, after which they may be removed into the pleaſure-garden.

But the plants thus placed in the open air ſeldom ripen their ſeeds: ſo that the beſt method is to keep two or three plants in a moderate hot-bed, under a deep frame, where they will flower much earlier than the others, and being protected from wet and cold, will ripen their ſeeds every year.

SUMACH, *Vitrus*, a genus of plants ranged by Linnæus among the *pentandria trigynia*, and of which there are twelve ſpecies, but ſix of theſe only are cultivated in gardens. 1. Sumach with winged, obtuſely ſawed, oval leaves, hairy on their under ſide. 2. Sumach with winged, intire leaves, and a jointed, membranaceous foot-ſtalk. 3. Sumach with trifoliate leaves, angular rhomboidal lobes, ſtanding upon foot-ſtalks, and downy on their under ſide. 4. Sumach, with trifoliate leaves, and linear, ſpear-ſhaped, intire lobes, ſtanding upon foot-ſtalks, and downy on their under ſide. 5. Sumach, with trifoliate leaves, and ſmooth, wedge-ſhaped, ſeſſile lobes. 6. Sumach, with ſingle, obverſe, oval leaves.

The firſt ſpecies is a native of the ſouthern parts of Europe. The ſecond of North America. The third and fifth, of the Cape of Good Hope. The fourth grows naturally in Ethiopia: and the ſixth ſpecies is a native of Lombardy in Italy.

Culture of the SUMACH.

The two firſt ſpecies are ſhrubby plants, and are eaſily propagated by ſeeds, which ſhould be ſown in autumn, either in the full ground, or in pots. When ſown in pots, they ſhould be placed under a common frame in the winter, and in ſpring let them be plunged into a very moderate hot-bed. When the plants come up, they ſhould have a large ſhare of air, and be hardened by degrees to bear the open air, into which they may be removed as ſoon as the weather is favourable, placing them ſo as to have the morning ſun. Let them be kept clean from weeds, and in dry weather ſupplied with water. In the autumn following the pots may be removed again under a common frame, obſerving never to cover them but in froſt. The following ſpring, juſt before the plants begin to ſhoot, they ſhould be ſhaken out of the pots, carefully ſeparated, and then tranſplanted into a nurſery, three feet aſunder, and at one foot diſtance in the rows. In this nurſery they may ſtand two years to get ſtrength, after which they may be tranſplanted to the places where they are deſigned to remain.

The ſeeds which are ſown in the full ground may be covered the firſt winter with ſome old tanners-bark, which in the ſpring ſhould be drawn off, when the danger of hard froſt is over. When the plants come up they muſt be kept clean from weeds, and in the ſpring following be carefully taken up, and tranſplanted into a nurſery as before directed; but the eaſieſt method of propagating theſe plants is by ſuckers: they are alſo propagated by layers and cuttings.

The third, fourth, and fifth ſpecies are too tender to live through the winter in the open air of this country: for which reaſon they are planted in pots or tubs, and houſed in autumn, and in the winter they may be treated in the manner of other hardy green-houſe plants; they are propagated by cuttings.

The ſixth ſpecies is propagated by layers, which ſhould be laid down in autumn. In the autumn following they may be taken from off the old plants, and tranſplanted into a nurſery, where, after they have continued a year or two, they may be planted in the places where they are deſigned to remain.

Myrtle-leaved SUMACH, *Coriania*, a genus of plants of which there are only two ſpecies. 1. Male Myrtle-leaved Sumach. 2. Female Myrtle-leaved Sumach.

Theſe plants are natives of France. They ſeldom riſe more than four feet high, but ſend forth a number of ſtems, ſo as to form a thicket.

Culture of the Myrtle-leaved SUMACH.

Both ſpecies are propagated by the ſuckers, which muſt be taken off in autumn, and planted in a nurſery, where they may ſtand one or two years, and then be removed to the places where they are to remain: which ſhould be in wilderneſs quarters that have vacancies to fill up, for they are plants improper for a ſmall garden.

SUMMITS, Apices, or Antheræ. See the article Antheræ.

SUN-FLOWER, *Helianthus*, a genus of plants ranged by Linnæus among the *ſyngeneſia polygamia fruſtranæa*, and of which there are ten ſpecies. 1. Sun-flower, with all the leaves heart-ſhaped, veins uniting behind at the baſe, but towards the border naked; commonly called Annual Sun-flower. 2. Sun-flower, with the under leaves heart-ſhaped, veins uniting behind at their baſe, and the upper leaves oval; commonly called Perennial Sun-flower. 3. Sun-flower, with oval, heart-ſhaped leaves, with the nerves uniting in the leaf; commonly called Jeruſalem Artichoke. 4. Sun-flower, with a ſtalk ſmooth on the under-ſide, heart-ſpear-ſhaped leaves, and ten petals in the rays. 5. Sun-flower, with a ſpindle-ſhaped root. 6. Sun-flower, with rough, ſpear-ſhaped leaves, and a ſlender ſtalk, ſmooth towards the bottom. 7. Sun-flower, with ſmooth, ſpear-ſhaped, ſawed leaves. 8. Sun-flower, with narrow leaves. 9. Sun-flower, with oblong, oppoſite, oval, ſeſſile leaves, three veins, and a dichotomous panicle. 10. Sun-flower, with oval, rough, crenated leaves, with three nerves, the ſcales of the cup erect, and as long as the diſk of the flower.

All theſe ſpecies are natives of different parts of America. The ſecond ſort is moſt proper for large borders in great gardens: it begins flowering in July, and continues till October.

For an account of the third ſpecies, ſee the article *Jeruſalem* Artichoke.

Culture of the Sun-flower.

The firſt ſpecies is propagated by ſeeds, which ſhould be ſown in March upon a bed of common earth. When the plants come up they muſt be thinned where they grow too cloſe, and kept clean from weeds; and when they are about ſix inches high, they ſhould be taken up with balls of earth to their roots, and planted into the large borders of the pleaſure-garden, where they muſt be watered till they have taken new root, after which they will require no other care but to be kept clean from weeds.

In July the great flowers upon the tops of the ſtems will appear, amongſt which the beſt and moſt double flowers ſhould be preſerved for ſeeds.

All the other ſpecies are propagated by parting their roots, which ſpread and increaſe greatly. The beſt time for doing this is about the middle of October, ſoon after the flowers are paſt, or very early in the ſpring: and the plants will only require the common care of being watered and kept clear from weeds.

SUN-FLOWER, or *Dwarf* CISTUS, *Helianthemum*, according to Linnæus a ſpecies of the Ciſtus or Rock Roſe: but by other botaniſts conſidered as a diſtinct genus, of which they enumerate too many ſpecies to be deſcribed here, eſpecially as they all require the ſame culture.

Culture of the Sun-flower *or Dwarf* Ciſtus.

All the perennial ſorts of this plant may be propagated by ſeeds, which ſhould be ſown in the places where the plants are to remain: they will require no other culture but to keep them clear from weeds, and to thin them where they grow too cloſe, always obſerving to leave thoſe plants at the greateſt diſtance from each other, whoſe ſtalks trail on the ground and grow the longeſt.

Theſe plants will continue ſeveral years in a poor dry ſoil; but in rich ground, or moiſt ſituations, they ſeldom laſt long.

The annual ſorts are alſo propagated by ſeeds, which ſhould be ſown on a bed of common earth in April. When the plants come up they will require no other care but to thin them where they grow too cloſe, and to keep them clean from weeds.

Baſtard SUN-FLOWER, *Helinia*, a genus of plants ranged by Linnæus among the *ſyngeneſia polygamia ſuperflua*, and of which he reckons only one ſpecies.

This plant is a native of North America, where it riſes to the height of ſix or ſeven feet. The leaves are ſmooth, with intire edges. The flowers are yellow, and reſemble in ſhape the Sun-flower, but are much ſmaller.

Culture of the Baſtard Sun-flower.

It may be propagated either by ſeeds or by parting of the roots, which laſt method is uſually practiſed in this country, becauſe the plant ſeldom perfects ſeed here. The roots ſhould be tranſplanted and parted in October, when their flowers are paſt, or in the beginning of March, juſt before they begin to ſhoot. They ſhould be carefully watered if the ſeaſon requires it, and ſhould not be removed oftener than every other year, if they are expected to flower ſtrong.

If it is propagated by ſeeds they ſhould be ſown in March upon a bed of light earth, where they often remain a twelvemonth before the plants appear. When they come up, if the ſeaſon proves dry, they ſhould be often watered, and thinned where they grow too cloſe. In May they muſt be tranſplanted into another bed, allowing a foot diſtance between them: here they muſt be ſhaded till they have taken root, and watered in dry weather. In autumn they may be tranſplanted to the places where they are to remain.

Dwarf SUN-FLOWER, *Rudbeckia*, a genus of plants ranged by Linnæus among the *ſyngeneſia polygamia fruſtranæa*, and of which there are five ſpecies. 1. Dwarf Sun-flower, with compoſite, jagged leaves. 2. Dwarf Sun-flower, with under leaves, having three lobes, and the upper ones entire. 3. Dwarf Sun-flower, with oval, ſpattle-ſhaped, undivided leaves, and the petals of the rays indented. 4. Dwarf Sun-flower, with oval, ſpear-ſhaped, undivided leaves, placed alternate, and the petals of the ray bifid. 5. Dwarf Sun-flower, with oppoſite, ſpear-ſhaped, oval, ſawed leaves, and the petals of the ray bifid.

The ſeveral ſpecies of this plant are natives of North-America.

Culture of the Dwarf Sun-flower.

The firſt ſpecies is propagated either by ſowing the ſeeds, or parting the roots: but the fineſt plants are obtained from ſeeds, which ſhould be ſown early in the ſpring upon a bed of light earth; the plants ſhould be removed in autumn into the places where they are intended to flower, allowing a large ſpace, clear, between them.

The ſecond ſpecies is propagated by off-ſets, which ſhould be parted in the ſpring, and planted in a dry ſoil and a warm ſituation.

The third ſpecies is propagated by off-ſets or ſlips planted in the ſpring, in a dry ſoil and a warm ſituation: but the beſt plants are raiſed from ſeed, which is ſeldom produced in great perfection in this country, it ſhould therefore be procured from America. This ſort has a root which will continue four or five years, but when care is not taken to ſhelter it in the winter, the plants are often deſtroyed by cold, or too much wet.

The fourth and fifth ſpecies may alſo be propagated by ſlips or heads, but the beſt way is to raiſe the plants from ſeeds.

Dwarf SUN-FLOWER, *Tetragonotheca*, a genus of plants of which there is only one ſpecies.

This plant is a native of Carolina. It ſeldom grows above two feet high. The leaves are large, oblong, and rough. The flowers are yellow, and reſemble the Sun-flower in ſhape.

Culture of this Dwarf Sun-flower.

It is propagated by ſeeds, which ſhould be procured from Carolina, and ſown in the ſpring in the full ground, where ſometimes they will remain a year before the plants come up, all which time the ground muſt be kept weeded; and when the plants appear, they muſt be kept clean from weeds, and, if the ſeaſon proves dry, they will require frequent waterings. In autumn they ſhould be tranſplanted to the places where they are to remain.

The roots of this plant are perennial, and will abide through the winter in the full ground, if they are planted in a warm ſituation: but in very ſevere weather they ſhould be covered over with rotten tan, or peaſe-haulm, to keep out the froſt.

SURIANA, a genus of plants of which there is only one ſpecies.

This plant is a native of the Weſt-Indies, where it riſes with a thick ſhrubby ſtalk nine feet high. The leaves are rounded at the point, and of a dingy green colour. Between the leaves are placed the foot-ſtalks of the flowers, which are about an inch long, and each ſuſtains two, three, and ſometimes four yellow flowers.

Culture of the SURIANA.

It is propagated by ſeeds, which muſt be ſown on a hot-bed early in the ſpring: and when the plants come up they muſt be carefully weeded, and frequently refreſhed with water. In warm weather the glaſſes of the hot-bed ſhould be raiſed every day, to admit freſh air to the plants. When they are fit to remove they ſhould be taken up carefully, and each planted in a ſeparate ſmall pot, and plunged into a hot-bed of tanners-bark, where they muſt be ſhaded till they have taken new root: after which they muſt have freſh air admitted to them every day in proportion to the warmth of the ſeaſon. In autumn the plants muſt be removed from this hot-bed into the ſtove, and placed in the bark-bed, where they muſt remain all the winter, frequently refreſhing them with water, in very ſmall quantities. In ſummer they muſt enjoy a large ſhare of air, by opening the glaſſes of the ſtove, and if the leaves have contracted any filth, it muſt be carefully waſhed off with a ſponge.

SWALLOW-WORT, *Aſclepias.* See the article ASCLEPIAS.

SWEET WILLIAM, a ſpecies of Carnation.

Of the Sweet Williams there is a great variety, and very elegant diverſities of colouring; the principal difference however is between the ſingle and the double kinds.

Culture of the SWEET WILLIAM.

The ſingle kinds are to be propagated by ſowing their ſeeds in March, on a bed of light earth; in May they muſt be planted out, at ſix inches diſtance, in beds of the ſame earth, where they ſhould remain till Michaelmas, and then be tranſplanted to the places where they are deſigned to ſtand. They will flower in May, and perfect their ſeeds in Auguſt, when that of the beſt flowers ſhould be ſaved.

The double kinds are propagated by layers, in the ſame manner as carnations; they love a middling ſoil, neither too light nor too ſtiff: they continue flowering a long time, and are very beautiful; eſpecially a variety called the Mule, which produces yearly two full blooms of flowers, the one in May, the other in July.

SYCAMORE TREE, a ſpecies of the Maple-Tree. See the article MAPLE-TREE.

SYCAMORE, a ſpecies of fig-tree. See FIG-TREE.

SYRINGA, *Lilac*, a genus of plants ranged by Linnæus among the *diandria monogynia*, and of which there are only two ſpecies. 1. Syringa with oval, heart-ſhaped leaves. 2. Syringa with ſpear-ſhaped leaves, commonly called Perſian Jaſmine.

Both theſe plants are natives of Perſia. There are three varieties of the firſt ſort, which differ in the colour of their flowers, and alſo in that of their ſhoots and leaves; one of theſe has white flowers, one blue, and the third purple. Theſe ſhrubs all grow to the height of eighteen, and often twenty feet.

Culture of the SYRINGA.

Theſe plants are generally propagated by ſuckers, which ſhould be carefully taken from the roots of the old plants in autumn, and planted in rows, three feet aſunder, and one foot diſtance in the rows here they may ſtand a year or two to get ſtrength, and then they ſhould be removed to the places where they are deſigned to remain; which ſhould be upon a light rich ſoil. But as theſe plants put out ſuch plenty of ſuckers from the roots as will ſtarve them, if they are not annually taken off, the beſt way of propagating the plants is by ſeeds, which ſhould be ſown ſoon after they are ripe: the plants will come up the following ſpring, and generally flower the third year. The autumn is the beſt time for tranſplanting theſe ſhrubs.

SYRINGA, MOCK-ORANGE, or PIPE-TREE, *Philadelphus*, a genus of plants ranged by Linnæus among the *icoſandria monogynia*, and of which there are only two ſpecies. 1. Syringa with leaves ſomewhat indented. 2. Syringa with entire leaves.

The firſt ſpecies is a ſhrubby plant, but the place where it grows naturally is uncertain. The ſecond ſpecies is a native of Carolina, but is ſeldom met with in the Engliſh gardens.

Culture of the SYRINGA *or* MOCK-ORANGE.

The firſt ſort is propagated by ſuckers, which ſhould be taken from the old plants in autumn, and planted in a nurſery, where they may remain a year or two till they have obtained ſtrength, after which they may be tranſplanted to the places on which they are deſigned to ſtand; they are hardy, and will grow in almoſt any ſoil or ſituation.

T.

TABERNÆMONTANA, a genus of plants of which there are only two ſpecies. 1. Tabernæmontana with ſpear-ſhaped leaves. 2. Tabernæmontana with oblong, oval, acute-pointed leaves.

The firſt ſpecies is a native of ſeveral iſlands in the Weſt Indies. It riſes about ſixteen feet high, and the bark, which is ſmooth, abounds with a milky juice. The leaves are thick, having many veins from the midrib to the border, and are full of the ſame milky juice. The flowers grow in bunches from the wings of the ſtalk, they are ſmall, of a bright yellow colour, and have an agreeable odour.

The ſecond ſpecies is a native of La Vera Cruz. It is about twelve feet in height. The leaves are oblong, oval, and of a lucid green, and a thick conſiſtence. The flowers grow, in large round bunches, at the ends of the branches; they are white, extremely ſmall, but have a moſt agreeable ſcent.

Culture of the TABERNÆMONTANA.

Theſe plants may be propagated either by ſeeds or cuttings. If by ſeeds they ſhould be procured from the places where they grow naturally, and ſown early in the ſpring on a hot-bed: and when the plants come up, they muſt be carefully tranſplanted into ſmall pots, filled with rich, light earth, and plunged into a hot-bed of tanners-bark, where they muſt be ſhaded in the heat of the day till they have taken new root: after which they ſhould always have free air admitted to them in proportion to the warmth of the ſeaſon; but, if the nights prove cold, the glaſſes of the hot-bed ſhould be covered every evening with mats, ſoon after the ſun goes off from the bed. The plants muſt be often refreſhed with a little water, for if it is given in too great quantities it will cauſe them to rot. During the ſummer ſeaſon the plants may remain in this hot-bed, obſerving at times to ſtir up the tan, and to add a little new, that the heat of the bed may not decreaſe: but at Michaelmas they muſt be plunged into the bark-bed in the ſtove, where they muſt always remain, keeping them in a moderate degree of warmth, and allowing them very little water; and in warm weather free air muſt be admitted to them, by opening the glaſſes of the ſtove.

If they are propagated by cuttings, they ſhould be cut off from the old plants during the ſummer ſeaſon, and laid to dry ſix or ſeven days in the ſtove; after which they ſhould be planted in pots filled with light, freſh earth, and plunged into a hot-bed of tanners-bark, where they muſt be covered cloſe with a hand-glaſs, and ſhaded from the ſun in the middle of the day, allowing them at times a little water. When they have taken root they may be tranſplanted into ſeparate pots, and treated in the ſame manner as the ſeedling plants.

TAMARIND-TREE, *Tamarindus*, a genus of plants of which there is only one ſpecies.

This tree is a native of the Indies. It riſes with a large ſtem a conſiderable height, and divides into a number of branches toward the top. The leaves are compoſed of ſixteen or eighteen pair of lobes, a little hairy, and of a bright green. The flowers grow from the ſides of the branches, and are ſucceeded by thick, compreſſed pods, from two to five inches long, full of an acid pulp.

Culture of the TAMARIND-TREE.

It is propagated by ſeeds, which ſhould be ſown on a hot-bed in the ſpring. When the plants come up they muſt be tranſplanted each into a ſeparate ſmall pot, filled with light rich earth, and plunged into a hot-bed of tanners-bark, where they muſt be watered and ſhaded till they have taken freſh root: after which they ſhould have air admitted to them according to the warmth of the ſeaſon, and the bed in which they are placed.

When their roots have filled the pots, they ſhould be ſhifted into larger, and again plunged into the hot-bed: and when they have taken new root they may be treated in the ſame manner as the coffee-tree.

TAMARISK, *Tamarix*, a genus of plants ranged by Linnæus among the *pentandria trigynia*, and of which there are only two ſpecies. 1. Tamariſk, with flowers furniſhed with five ſtamina. 2. Tamariſk, with flowers furniſhed with ten ſtamina.

The firſt ſpecies is a native of Spain, France, and Italy, and grows to be a tree of a middling ſize. The ſecond ſpecies is a ſhrub which grows naturally in Germany.

Culture of the TAMAEISK.

Theſe plants are propagated by laying down their tender branches in autumn; or by cuttings, which ſhould be planted in an eaſt border: either way, they muſt be ſupplied with water in dry weather, and in the following autumn removed into a nurſery to be trained up two or three years, or elſe into the places where they are deſigned to remain, taking care to mulch their roots, and water them as the ſeaſon may require, till they have taken root; after which they will require no other culture but to prune off the ſtraggling ſhoots, and keep the ground clean about them.

TAN, or *Tanners*-BARK, the bark of the oak chopped and ground in a mill, into a coarſe powder, to be uſed in tanning or dreſſing of ſkins, after which it is of great uſe in gardening.

Its fermentation is very laſting and very equal: hence it is the moſt valuable of all things for the making of hot-beds. It was introduced into England by the Dutch, in the reign of king William, for the raiſing of orange-trees: but after this period it became diſuſed, and it is of a much later date that it has been brought into uſe again for the raiſing pine-apples, ſince which time it is become generally uſed, wherever it is to be had, for all the purpoſes of the hot-bed, in raiſing tender plants.

There are ſeveral ſizes of Tan, and they heat in a different manner in proportion to their ſize, the ſmalleſt heating much quicker, and cooling again in a ſhorter time: and the largeſt acquiring its heat more gradually, but keeping it much longer. The gardener ſhould therefore uſe one or other of theſe, or a mixture of both, according to the ſeveral occaſions he wants them for.

Tan ſhould always be taken within a fortnight after it comes out of the pit, and laid up in a round heap for a week, to drain out the moiſture: after which it ſhould be formed into a bed; for the method of doing which, ſee the article HOT-BEDS.

TANSEY or TANZY, *Tanacetum*, a genus of plants ranged by Linnæus among the *ſyngeneſia polygamia ſuperflua*, and of which there are eight ſpecies. 1. Tanſey, with winged leaves, whoſe lobes are linear, growing at a diſtance from each other, and are entire. 2. Tanſey, with many pointed, winged leaves, and linear, divided, and acute ſegments. 3. Tanſey, with wing-pointed leaves, and ſpear-ſhaped, intire, obtuſe ſegments. 4. Tanſey, with winged leaves, cut into linear, thread-like ſegments, a ſmall corymbus, and an herbaceous ſtalk. 5. Tanſey, with doubly-winged, woolly leaves, and an oval, compound corymbus. 6. Tanſey, with doubly wing-pointed, linear, acute leaves, and a woolly corymbus. 7. Tanſey, with doubly-winged, cut, and ſawed leaves; or the common yellow Tanſey. 8. Tanſey, with oval, intire, ſawed leaves; or Coſtmary, or Alecoaſt.

The firſt, ſecond, and third ſpecies are ſhrubby plants, and natives of Ethiopia.

The fourth ſpecies is a native of Siberia. The fifth ſpecies grows naturally in the eaſt. The ſixth ſort is a native of Spain.

The ſeventh ſpecies is a native of England, and grows by the ſides of roads and the borders of fields; and the eighth is a native of Italy.

Culture of the TANSEY.

The three firſt ſpecies are propagated by cuttings, which may be planted in beds of loamy earth, during any of the ſummer months; they muſt be ſhaded from the ſun till they have taken root, and frequently watered: after which they may be taken up with balls of earth about their roots, and planted in pots placed in a ſhady ſituation. When they have taken root they may be placed among other hardy exotic plants, where they may remain till late in October: then let them be removed into ſhelter, but they ſhould not be tenderly treated, as they require only to be protected from hard froſts.

The fourth, fifth, and ſeventh ſpecies are eaſily propagated by their creeping roots, which if they remain undiſturbed, will, in a ſhort time, overſpread the ground where they are ſuffered to grow; they may be tranſplanted either in the ſpring or autumn, and will thrive in almoſt any ſoil or ſituation.

The ſixth ſpecies is propagated by ſeeds, which muſt be ſown on a hot-bed in ſpring; when the plants are about three inches high they may be planted in pots, and treated in the ſame manner as directed for the firſt three ſorts.

The eighth ſpecies is a perennial plant, and is propagated by parting the roots ſome time in autumn, and planting them in beds at the diſtance of two feet every way; they will thrive in almoſt any ſoil or ſituation, but will continue longeſt in dry land. The roots muſt be tranſplanted, and parted every other year, to keep the plants within compaſs.

TENDRIL, a part of a ſtalk, or rather a branch from the ſide of a ſtalk, placed oppoſite to the leaf, which curls and lays hold on any adjacent body, and thereby ſupports the ſtalk, as the vine, &c.

TERGIFOETOUS PLANTS, ſuch as bear their ſeeds on the back ſides of their leaves.

TERRACE or TERRAS, a walk or bank of earth raiſed in a garden to a due elevation for a proſpect.

TETRACERA, a genus of plants of which there is only one ſpecies.

It is a native of La Vera Cruz, and many of the Britiſh iſlands in the Weſt-Indies, where it riſes with a woody ſtem to the height of fourteen feet. The branches are ſlender, and twine about any neighbouring ſupport. The leaves are oblong, oval, rough on the ſurface, of a greyiſh colour on their upper ſides, and brown on the under. The flowers grow in bunches at the ends of the branches.

Culture of the TETRACERA.

It is propagated by ſeeds, which ſhould be obtained from the places where it grows naturally, and ſown in pots filled with light earth, and plunged into a moderate hot-bed of tanners-bark; before winter the pots muſt be removed into the ſtove, and placed in the tan-bed, where they muſt remain till ſpring, when they ſhould be taken out and plunged into a freſh hot-bed of tanners-bark. When the plants are come up and obtained ſome ſtrength, they ſhould be each planted in a ſeparate ſmall pot, filled with light earth, and again placed in a good hot-bed of tan, ſhading them from the ſun till they have taken new root; after which they muſt be treated in the ſame manner as other tender exotics, which require to be always kept in a tan-bed.

TETRAGONIA, a genus of plants ranged by Linnæus among the *polyandria tetragynia*, and of which there are three ſpecies. 1. Tetragonia, with linear leaves. 2. Tetragonia, with oval, entire leaves, and a ſhrubby trailing ſtalk. 3. Tetragonia, with oval leaves.

Theſe plants are natives of the Cape of Good Hope. If the ſtalks of the firſt ſpecies are ſupported they riſe four feet high, if not, they trail on the ground. The branches when young, are ſucculent, and covered with ſmall pellucid drops, which reflect the light. The leaves are thick, narrow, blunt, placed alternate, and at their baſe appears a cluſter of ſmaller leaves. The flowers grow at the wings of the ſtalk, and are ſucceeded by capſules, containing each one ſeed, which ripens in winter.

The ſecond ſpecies reſembles the firſt in every reſpect, except that the ſtalks and flowers are larger.

The third ſpecies has a very large root, ſoft, yellow, long, and hung with a few fibres. Many ſtalks grow from the head of this, which are round, tender, purpliſh or yellowiſh at the bottom, elſewhere green, and trail on the ground; the leaves are placed upon them ſingly and irregularly: they are ſmall at the baſe, and gradually enlarge to a broad-rounded end: they are thick, juicy, and of a lively green. The flowers are very numerous, but ſmall, and of a bright yellow.

Culture of the TETRAGONIA.

All theſe plants are propagated by cuttings, which ſhould be laid to dry five or ſix days before they are planted. The beſt time for doing this is in July, and they ſhould be planted on a bed of freſh earth, where they ſhould be ſhaded from the ſun in the heat of the day, and frequently refreſhed with a little water. In about ſix weeks they will have made good roots, when they ſhould be tranſplanted into pots filled with light, freſh, undunged earth, and placed in a ſhady ſituation till they have taken root: after which they may be ſet among other hardy exotics, where they may remain till the middle of October, at which time they ſhould be removed into the green-houſe, and placed where they may enjoy as much free air as poſſible in mild weather. They ſhould have very little water in winter.

Theſe plants may alſo be propagated by ſeeds, which ſhould be ſown on a warm border of light, freſh earth, where they will often remain a year before the plants come up, for which reaſon the border ſhould not be diſturbed, but kept conſtantly clean from weeds. When the plants are about four inches high they ſhould be taken up and planted in pots, after which they may be treated in the ſame manner as the cuttings.

TETRAPETALOUS, an epithet given to flowers that conſiſt of four ſingle petala, or flower leaves, placed around the piſtil.

New-Jerſey THEA, *Ceanothus*, a genus of plants ranged by Linnæus among the *pentandria monogynia*, and of which there are three ſpecies. 1. New-Jerſey Thea, with three-ribbed leaves. 2. New-Jerſey Thea, with leaves that have no nerves or ribs. 3. New-Jerſey Thea, with ſpear-ſhaped leaves that have no ribs, and roundiſh ſtipulæ.

The firſt ſpecies is a native of North America. It is about four feet in height, and ſends out a number of branches. The leaves are oval, pointed, having three longitudinal veins running from the foot-ſtalk to the point, and of a bright green. The flowers are white, and grow in thick ſpikes at the extremity of each ſhoot, ſo that the whole ſhrub is covered with them, which makes a moſt beautiful appearance.

The ſecond ſpecies riſes to the height of ten, and ſometimes twelve feet. The leaves are oblong, pointed, ſmooth, ſlightly ſawed on their edges, and of a lucid green. The flowers are ſmall, and of an herbaceous colour.

The third ſpecies grows naturally in America. It riſes to the height of twenty feet. The leaves are oval, and veined. The flowers grow from the wings of the leaves, and are of a white herbaceous colour.

Culture of the New-Jerſey THEA.

The firſt ſpecies is propagated by laying down the young branches, which will readily take root, and require no particular management. They will be fit to take off the next ſeaſon: after which no more is neceſſary than to pot them, and, for perfect ſecurity, to take them into the green-houſe in winter.

The ſecond ſpecies is propagated by ſeeds, which ſhould be ſown on a hot-bed in the ſpring. When the plants are fit to remove, let them each be planted in a ſeparate ſmall pot filled with light ſandy earth, and plunged into a hot-bed of tanners-bark, obſerving to ſhade them till they have taken root. In the autumn they muſt be placed in the bark-ſtove, and watered with great caution.

The third ſpecies is propagated by cuttings, which ſhould be planted in ſpring, in pots filled with kitchen-garden earth, and plunged into a very moderate hot-bed, where they muſt be ſhaded in the heat of the day, and at times refreſhed with a little water. When they have taken root they muſt be gradually inured to the open air: and when they have got ſtrength, ſeparate, and plant them each in a ſmall pot, and when they have got new root let them be treated like other tender exotics, houſing them in autumn.

THERMOMETER, an inſtrument for meaſuring the increaſe and decreaſe of the heat and cold of the air, by means of the elaſtic and expanſive power of bodies of the fluid ſort.

Many different ways, methods, and forms of conſtructing ſuch an uſeful inſtrument, have been thought of, and invented at ſeveral times for this purpoſe: at firſt air, then oil, then ſpirits of wine, and laſtly, quickſilver, has been every way attempted in this experiment; the ſpring of air being ſooner affected by heat and cold than that of any other fluid, was firſt thought upon as the beſt expedient to anſwer this end: and it really would be, were it not that the weight or preſſure of the atmoſphere affects it alſo at the ſame time; and by acting ſometimes with, ſometimes againſt it, renders the effect by heat and cold very uncertain, and therefore the inſtrument uſeleſs.

It was upon this account found neceſſary to have recourſe to ſome other fluid, which, ſecured from the preſſure of the air in a tube, hermetically ſealed, might expand and contract ſolely by the heat and coldneſs of the air about it. And becauſe moſt fluids are ſubject to freeze and thicken in great degrees of cold, it was ſoon conſidered that ſpirits of wine, a little tinged with cochineal, would beſt anſwer the purpoſe, and accordingly Thermometers were generally made therewith, and became of common uſe. Though the ſpirit of wine Thermometers would do very well to ſhew the comparative heat of the air, yet this was far ſhort of the virtuoſo's views, who wanted to explore the various and vaſtly different degrees of heat in other bodies, as boiling water, boiling oil, boiling metals, and even fire itſelf, and degrees of cold too beyond what the ſpirit Thermometers can ſhew: for ſpirits in a moderate degree of heat will burſt the tube, and in an intenſe degree of cold will freeze.

It having been found by experiment that linſeed-oil required four times the degree of heat to make it boil as water did, it was quickly ſubſtituted for philoſophical uſes. As the mercury very freely and uniformly expands itſelf from hard froſt to the heat of ſummer, ſo mercurial Thermometers are contrived with a ſcale to include thoſe extremes only, and the beginning of the diviſions, or 0, is fixed to that altitude of the quickſilver, as is obſerved when water juſt begins to freeze, or ſnow to thaw: for which reaſon that is called the freezing point in the ſcale.

The late Dr. Hales conſiders the freezing point as one boundary to vegetation: *viz.* on the ſide of cold; and the other boundary he fixes to that degree of heat with which wax will begin to melt, becauſe a greater degree of heat will, inſtead of collecting and aſſimilating the nutritive particles, diſſipate them, even thoſe which are moſt viſcid and glutinous: and therefore the plant will rather fade than vegetate in ſuch degrees of heat; this ſpace the doctor divided into one hundred equal parts in his Thermometers, but his numbers expreſſed in thoſe of the Standard-thermometer, are for ſeveral particulars mentioned by the doctor as follows: For myrtles, $4\frac{1}{2}$; oranges, $6\frac{1}{2}$; ficoides, $7\frac{1}{2}$; Indian-fig, $8\frac{1}{2}$; aloe, 10; cereus, 11; euphorbium, 12; piamento, $13\frac{1}{4}$; air under the glaſs of a hot-bed, 17; the hot-bed itſelf, 28. If the hot-bed exceeds the heat of 40, or thereabouts, it will ſcorch the plants and kill them. The heat of milk from the cow is 28, that of urine 29, and of blood in a fever nearly 40.

Bleſſed THISTLE, *Cnicus*, a genus of plants ranged by Linnæus among the *ſingeneſia polygamia æqualis*, and of which there are five ſpecies. 1. Bleſſed Thiſtle with a diffuſed ſtalk, and ſinuated, indented leaves, or the common Carduus Benedictus. 2. Bleſſed Thiſtle with an upright ſtalk, the lower leaves jagged, and the upper ones intire, and concave. 3. Bleſſed Thiſtle with winged, ſinuated, prickly leaves, embracing a ſingle ſtalk, and the flowers growing cloſe to the ſtalks. 4. Bleſſed Thiſtle with winged leaves, and ſcaly, membranaceous cups. 5. Bleſſed Thiſtle with heart-ſhaped leaves, curled prickly foot-ſtalks embracing the ſtalks, and nodding flowers.

The firſt ſpecies is a native of Spain, and of the iſlands of Chios and Lemnos. The ſecond grows naturally in the northern parts of Europe. The third and fourth in Switzerland and Auſtria, and the fifth in Siberia.

Culture of the Bleſſed Thistle.

The firſt ſpecies is propagated by ſeeds, which may be ſown either in ſpring, or autumn, but autumn is the beſt; ſcatter them on a bed of common earth in a dry part of the garden; where the plants will live through the winter, and in the ſpring they ſhould be tranſplanted in rows at a foot diſtance, and the plants nine inches aſunder in the rows. If the ſeaſon ſhould prove dry, it will be neceſſary to water them at times till they have taken root, after which they will require no other culture, but to keep them clean from weeds.

All the other ſpecies are propagated either by ſeeds or by parting their roots, the beſt time for which is autumn. They only require to be kept clear from weeds.

Melon THISTLE. See the article Melon-Thistle.

Globe THISTLE, *Echinops*, a genus of plants of which there are four ſpecies. 1. Greater Globe Thiſtle. 2. Smaller Globe Thiſtle. 3. Globe Thiſtle with a large head. 4. Globe Thiſtle with a ſmall blue head.

The firſt ſpecies is a native of Italy and Spain; the ſecond of France and Italy; the third of Spain and Portugal; and the fourth of Greece.

Culture of the Globe Thistle.

The firſt and ſecond ſpecies are eaſily propagated by ſeeds, which, if permitted to ſcatter, the plants will come up freely, when they may be tranſplanted to the places where they are deſigned to ſtand, after which they only require to be kept clean from weeds.

The ſeeds of the third ſpecies ſhould be ſown upon a border of light earth where the plants are to remain; they require no other management, than to be thinned where they grow too cloſe.

The fourth ſpecies is eaſily propagated by its creeping roots, which ſhould be planted in a dry ſoil, and a warm ſituation.

Torch THISTLE, *Cereus*, according to Linnæus a ſpecies of Cactus, but conſidered by other authors as a diſtinct genus, of which there are twelve different ſpecies, all of them natives of the warmer parts of America; where they are cultivated for their fruit, but in the Engliſh gardens they are preſerved for the beauty of their flowers.

Culture of the Torch Thistle.

All the kinds of this remarkable plant are propagated by cuttings in June or July, which ſhould be laid three weeks in an airy place, to dry: They are then to be planted in ſmall pots, filled with light ſandy earth, with a mixture of lime rubbiſh, laying ſome ſtones at the bottoms of the pots to drain off the moiſture. The pots are then to be placed in a gentle hot-bed of tanners bark, where they muſt be watered once a week. Toward the middle of Auguſt they muſt have air admitted to them by degrees, and at the end of September they ſhould be removed into the ſtove, where they are to remain the winter, and ſhould never be expoſed to the open air, even in the midſt of ſummer.

When the top of an old plant has been cut off, it always throws out ſeveral young ſhoots from its angles, which may all be eaſily propagated in the ſame manner, and as it always continues to do the ſame, there will be a continual ſupply even from one ſtock.

They may be brought in ſmall pieces from the Weſt Indies, packed up in ſtraw, and will grow, when planted here, equally well as cuttings from our own plants.

THORN-APPLE. See the article *Thorn*-Apple.

Lily THORN, *Cateſbæa*, a genus of plants, of which there is only one ſpecies.

This plant is a native of the iſland of Providence, where it riſes with a branching ſtem ten or twelve feet high. The leaves are ſmall, reſembling thoſe of box. The flowers grow from the ſides of the branches: they are near ſix inches long, and of a dull yellow.

Culture of the Lily Thorn.

It is propagated by ſeeds, which muſt be procured from the country where it grows naturally, and ſown in ſmall pots filled with light ſandy earth, and plunged into a moderate hot-bed of tanners-bark. If the nights prove cold, the glaſſes muſt be covered with mats every evening; and if the ſeeds were good, the plants will appear in about ſix weeks. In autumn the pots ſhould be removed into the ſtove, and plunged into the tan-bed; and in ſpring the plants ſhould be carefully taken up, and each planted in a ſeparate ſmall pot, filled with light, ſandy earth, and plunged into a freſh hot-bed of tanners-bark. In hot weather they ſhould have a large ſhare of air admitted to them, but in autumn they muſt be placed in the ſtove, where they ſhould conſtantly remain, and be treated in the ſame manner as other tender exotic plants.

Box THORN. See the article Box Thorn.

Chriſt's THORN, *Paliarus*, according to Linnæus a ſpecies of Rhamnus, but conſidered by other botaniſts as a diſtinct genus.

This plant is a native of the eaſt, and alſo of many parts of Europe. It riſes with a ſhrubby ſtalk about ten feet high. The leaves are oval, and of a pale green. The flowers grow in cluſters at the wings of the ſtalks, and are of an herbaceous yellow colour.

Culture of the Chriſt's Thorn.

This ſhrub is propagated by ſeeds, which as they do not ripen in England, ſhould be procured from the places in which they naturally grow, and ſown as ſoon as poſſible after they arrive, in a bed of light earth. When the plants have gathered ſtrength they ſhould be tranſplanted in autumn, ſoon after the leaves decay, or the beginning of April, juſt before they begin to ſhoot, into a nurſery; ſome mulch muſt be laid about their roots, and they ſhould frequently be refreſhed with water, until they have taken freſh root, after which they will require very little care.

Egyptian THORN, *Acacia*. See the article Acacia.

Goat's THORN, *Tragacantha*, according to Linnæus a ſpecies of Aſtragalus, but conſidered as a diſtinct genus by other botaniſts, of which they enumerate four ſorts. 1. Goat's Thorn, with oval, obtuſe lobes to the leaves. 2. Goat's Thorn, with ſpear-ſhaped lobes. 3. Goat's Thorn, with ſpear-ſhaped, acute-pointed, woolly leaves. 4. Goat's Thorn, with very narrow, ſmooth leaves.

The firſt ſpecies is a native of France and Italy. The ſecond of the iſlands of Minorca and Majorca. The third grows naturally in the Archipelago; and the fourth in Spain.

Culture of the Goat's Thorn.

Theſe plants may be propagated either by ſeeds or ſlips. If by ſeeds, they muſt be procured from the countries where they grow naturally, and ſown, in April, on a bed of freſh earth. When the plants come up, they muſt be kept clean from weeds, and if the ſeaſon proves dry, they ſhould have a little water at times: when they are ſtrong enough to remove, they ſhould be tranſplanted into ſmall pots, filled with freſh earth, and placed in the ſhade till they have taken root: after which they ſhould be placed in an open ſituation, where they may remain till about the end of October, at which time they muſt be ſet under a common hot-bed frame to be protected from the froſt, but ſhould have plenty of free air admitted to them in mild weather.

When the plants have got ſtrength by being preſerved a year or two in this manner, let them be ſhaken out of the pots, and planted in a clean, dry ſoil, and a warm ſituation.

If they are propagated by ſlips, they ſhould be planted in April on a moderate hot-bed, which ſhould be ſhaded from the ſun in the day, and from the cold in the night. The plants muſt be frequently but gently watered till they have taken root: after which they may be expoſed to the open air, kept clean from weeds, and in dry weather gently refreſhed with water. On this bed let the plants remain till the following ſpring, taking care if the winter be ſevere, to cover them with mats; and in April they may be tranſplanted either into pots filled with light, ſandy earth, or into warm borders in a poor, dry, gravelly ſoil.

Burning THORNY PLANT. See *Burning Thorny* PLANT.

THRIFT, *Statice*, a genus of plants of which there are three ſpecies. 1. Thrift, with ſpear-ſhaped, linear leaves. 2. Thrift, with linear, awl-ſhaped leaves. 3. Thrift, with plain, linear leaves; or Sea Pink.

The firſt and ſecond ſpecies grow naturally on moſt of the cold mountains in Europe: and the third in ſalt marſhes in many parts of England.

Culture of the THRIFT.

Theſe plants are propagated by parting their roots in autumn. All the care they require is to be kept clean from weeds, and to tranſplant and part their roots annually.

THROATWORT, *Trachelium*, a genus of plants ranged by Linnæus among the *pentandria monogynia*, and of which there is only one ſpecies.

This plant grows naturally in ſhady woods in many parts of Italy.

Culture of the THROATWORT.

It is propagated by ſeeds, which ſhould be ſown in autumn ſoon after they are ripe. When the plants come up let them be kept clean from weeds, and as ſoon as they have acquired ſtrength, be tranſplanted on a border of light, undunged earth, with an eaſt aſpect, and placed in rows ſix inches apart, and the plants four inches diſtant in the rows, where they muſt be ſhaded from the ſun till they have taken root, and in autumn be tranſplanted into the borders of the flower-garden, where they will flower the following ſummer.

If the ſeeds of theſe plants are ſcattered on old walls, the plants will readily come up, and ſhedding their ſeeds, will maintain themſelves without any care.

THYME, *Thymus*, a genus of plants ranged by Linnæus among the *didynamia gymnoſpermia*, and of which there are eight ſpecies: but of theſe, two or three only are propagated in gardens; and as theſe require the ſame culture, it is not neceſſary to deſcribe them.

Culture of the THYME.

It is propagated either by ſowing the ſeeds or parting the roots, both which ſhould be done in March. The ſeeds ſhould be ſown on a bed of light earth, and ſhould not be buried too deep. When the plants come up they muſt be kept clear of weeds, and watered at times: and in June they muſt be thinned, leaving the plants about ſix inches aſunder, after which they will grow very faſt, and require no farther care.

If they are propagated by parting of the roots, they ſhould be divided into as many ſlips as poſſible, and each planted at ſix or eight inches diſtance, on beds of light earth, watering and ſhading them till they have taken root.

Maſtick THYME, a ſpecies of Savory. See the article SAVORY.

TICKSEED, *Coreopſis*, a genus of plants ranged by Linnæus among the *ſyngeneſia polygamia fruſtranea*, and of which there are eight ſpecies. 1. Tickſeed, with decompounded, winged, narrow leaves. 2. Tickſeed, with triofoliate, intire leaves. 3. Tickſeed, with trifoliate, wedge-ſhaped leaves. 4. Tickſeed, with oval leaves, and the lower ones trifoliate. 5. Tickſeed, with ſpear-ſhaped, intire leaves. 6. Tickſeed, with narrow, intire leaves. 7. Tickſeed, with ſpear-ſhaped, ſawed, oppoſite leaves, embracing the ſtalks. 8. Tickſeed, with ſpear-ſhaped, ſawed, alternate leaves, and running foot-ſtalks.

The firſt, ſecond, third, fourth, ſixth, and eighth ſpecies are natives of Virginia. The fifth of Carolina; and the ſeventh grows naturally in ditches in moſt parts of Europe.

The ſixth and ſeventh ſorts are ſeldom admitted into gardens.

Culture of the TICKSEED.

The firſt, ſecond, third, and eighth ſpecies are propagated by parting of their roots in autumn; they require a light, loamy ſoil, and a ſunny expoſure.

The fourth and fifth ſpecies are propagated by ſeeds, which ſhould be ſown upon a gentle hot-bed in the ſpring: and when the plants are fit to be removed, they ſhould be planted each in a ſeparate ſmall pot, and plunged into a freſh hot-bed. In June let them be inured by degrees to the open air, and afterwards planted in a warm border.

TOAD-FLAX. See the article *Calf's*-SNOUT.

TOMENTUM, the downy matter which grows on the leaves of ſome plants.

TOOTHWORT, *Dentaria*, a genus of plants of which there are four ſpecies. 1. Toothwort, with ſawed leaves. 2. Toothwort, with ſeven leaves. 3. Three-leaved Toothwort. 4. Toothwort, with rough leaves.

Theſe plants grow naturally in the woods of Auſtria, and in the mountains in Italy.

Culture of the TOOTHWORT.

Theſe plants are all propagated by ſeeds, or by parting of their roots. If by ſeeds, they ſhould be ſown ſoon after they are ripe, in a light ſoil and a ſhady ſituation. In ſpring the plants ſhould be removed into a border of the ſame ſoil, after which they will require no further care.

If theſe plants are propagated by parting of the roots, it ſhould be done in October, and they ſhould be planted in a moiſt ſoil and a ſhady ſituation.

TOURNEFORTIA, a genus of plants of which there are eight ſpecies. 1. Tournefortia, with oval, ſpear-ſhaped leaves. 2. Tournefortia, with oval leaves growing upon foot-ſtalks. 3. Tournefortia, with oval, acute-pointed leaves. 4. Tournefortia, with hairy, heart-ſhaped leaves. 5. Tournefortia, with heart-ſhaped leaves, which are woolly on their under-ſide. 6. Tournefortia, with oval, rough leaves, growing upon foot-ſtalks. 7. Tournefortia, with oval, ſpear-ſhaped leaves, having acute points. 8. Tournefortia, with ſpear-ſhaped leaves ſitting cloſe to the ſtalk.

Theſe plants are all natives of different parts of America.

Culture of the TOURNEFORTIA.

Theſe plants are all propagated by ſeeds or cuttings. If by ſeeds, they muſt be procured from the countries where they grow naturally, and ſown in ſmall pots filled with light earth, and plunged into a hot-bed of tanners-bark; in autumn they muſt be removed into the ſtove, and placed in the tan-bed, where they ſhould remain all the winter, and in ſpring they ſhould be taken out and plunged into a freſh tan-bed, which will bring up the plants. When theſe are fit to remove, they muſt be each planted in a ſmall pot, and placed in a tan-bed, where they muſt be ſhaded from the ſun till they have taken new root: after which they muſt be treated like other tender plants from the ſame countries, which require to be conſtantly kept in the bark-ſtove.

The plants raiſed from cuttings muſt be treated in the ſame way.

TRANSPLANTATION *of Trees.* See the article Planting.

TRANSPORTATION *of Plants.* In ſending plants from one country to another, great cautions are neceſſary. The plants ſent from a hotter country to a colder, ſhould be always put on board in the ſpring of the year, that the heat of the ſeaſon may be advancing as they approach the colder climates: and on the contrary, thoſe which are ſent from a colder country to a hotter, ſhould be ſent in the beginning of winter. The beſt method of packing up plants for a voyage, if they be ſuch as will not bear keeping out of the earth, is to have boxes with handles, filling them with earth, and planting the roots cloſe together; the plants ſhould be ſet in theſe boxes three weeks before they are to be put on board: and in good weather they ſhould be ſet upon the deck, and in bad removed or covered with a tarpaulin. If they are going from a hotter country to a colder one, they muſt have very little moiſture; if, on the contrary, they are going from a colder to a warmer, they may be allowed water more largely, and being ſhaded from the heat of the ſun, they will come ſafe.

A great many plants, however, will live out of the earth a conſiderable while: as the ſedums, euphorbiums, ficoides, and other ſucculent ones; theſe need no other care than the packing them up with moſs in a cloſe box: and there ſhould be a little hay put between them, to prevent them from wounding or bruiſing one another, and holes bored in the boxes to keep them from heating and putrefying. In this manner they will come ſafe from a voyage of four or five months.

Several trees will alſo come ſafe in the ſame manner, taking them up at a ſeaſon when they have done growing, and packing them up with moſs. Of this ſort are oranges, olives, capers, jaſmines, and pomegranate-trees. Theſe, and many others, are annually brought over to us from Italy: and though they are three or four months in the paſſage, ſeldom miſcarry. For the beſt methods of tranſporting ſeeds, ſee the article Seed.

TRAVELLER'S JOY, a ſpecies of Clematis. See the article Clematis.

TREE, *Arbor*, the firſt and largeſt of the vegetable kind, conſiſting of a ſingle trunk, out of which ſpring forth branches and leaves.

Standard-trees are ſuch as naturally riſe to a great height, and are not topped: for the choice of trees of this kind to be tranſplanted out of a nurſery, Quintiney recommends us to ſuch as are ſtraight, ſix feet high at leaſt, and five or ſix inches thick at bottom, and three or four at top: the bark pretty ſmooth and ſhining, as a token of their youth, and of the good ſoil they grew in.

Dwarf-trees are ſuch as are kept low, and never ſuffered to have above half a foot of ſtem. See the article Dwarf.

TREE of LIFE, or Arbor Vitæ, *Thuya*, a genus of plants ranged by Linnæus among the *monoecia monadelphia*, and of which there are only two ſpecies. 1. Tree of Life, with ſmooth cones, and obtuſe ſcales; or the common Arbor Vitæ. 2. Tree of Life, with rugged cones, and acute-pointed, reflexed ſcales; or the China Arbor Vitæ.

The firſt ſpecies is a native of Canada, Siberia, and other northern countries. It riſes upwards of forty feet in height, and branches out irregularly on every ſide. The leaves lie over each other like the ſcales of fiſh. The flowers grow from the ſides of the young branches; when the male flowers have ſhed their farina they drop off, but the female ones are ſucceeded by oblong cones.

The ſecond ſpecies is a native of the northern parts of China, where it riſes to a great height. The branches croſs each other at right angles. The leaves are of a bright green, and the cones are of a beautiful grey colour.

Culture of the Tree *of* Life.

Both the ſorts may be propagated either by ſeeds, layers, or cuttings. The cuttings ſhould be planted in September, on a ſhady border, and in a loamy ſoil; they ſhould be choſen from ſhoots of the ſame year, with a ſmall joint of the former year's wood at the bottom of each: let them be planted three or four inches deep, and the next autumn be tranſplanted into beds or nurſery rows, to be trained up.

When theſe plants are propagated by layers, the young branches ſhould be laid down in autumn, and taken up the autumn following, and tranſplanted in the ſame manner as thoſe raiſed from cuttings.

But the largeſt and beſt trees are produced from ſeeds, which ſhould be ſown ſoon after they are ripe, in pots filled with ſoft, loamy earth, and plunged into the ground in an eaſt border, where they may have the morning ſun only, and the pots muſt always be kept clean from weeds. If the plants do not come up the ſame year, which often happens, the pots muſt be placed under a common hot-bed frame during winter, and in the ſpring the plants will appear; theſe ſhould not be too much expoſed to the ſun, and in the winter they muſt again be placed under a frame. The ſpring following they may be tranſplanted into beds, and treated in the ſame way as thoſe propagated from cuttings.

TREE PRIMROSE. See the article *Tree* Primrose.

Chaſte-TREE. See the article Chaste-*Tree.*

Wayfaring or Pliant Meally TREE, *Viburnum*, a genus of plants ranged by Linnæus among the *pentandria trigynia*, and of which there are eight ſpecies. 1. Meally-tree, with oval, intire leaves, and branches hairy and glandulous on the under-ſide. 2. Meally-tree, with intire, ſpear-ſhaped, oval leaves. 3. Meally-tree, with roundiſh, ſawed, crenated, and ſmooth leaves; commonly called Black Haw. 4. Meally-tree, with oval, indented, ſawed leaves. 5. Meally-tree, with heart-ſhaped, ſawed, veined leaves, hairy underneath. 6. Meally-tree, with leaves divided into lobes, and ſmooth foot-ſtalks. 7. Meally-tree, with leaves divided into lobes, and glandulous foot-ſtalks; called the Marſh Elder, or the Guelder Roſe. 8. Meally-tree, with oval, ſawed, ſmooth, acuminated leaves, and glandulous foot-ſtalks.

For an account of the two firſt ſpecies, ſee the article Laurustinus.

The third, fourth, ſixth, and eighth ſpecies are natives of North-America: and the fifth of different parts of Europe.

For the ſeventh ſpecies ſee the article *Guelder* Rose.

Culture of the Wayfaring or Pliant Meally Tree.

The third, fourth, and eighth ſpecies are generally propagated by cuttings or layers, which ſhould be planted in autumn in a moiſt ſoil; they require no particular care.

The fifth and ſixth ſpecies are propagated by laying down their tender branches in autumn, which the ſucceeding autumn may be taken off the old plants, and treated in the manner directed for the Lauruſtinus. See Laurustinus.

TREE GERMANDER. See the article *Tree* Germander.

Bird's-foot TREFOIL. See Lotus.

Snail TREFOIL. See the article *Snail* Trefoil.

Baſe-tree TREFOIL, *Cytiſus.* See the article Cytisus.

Stinking Bean TREFOIL, *Anagyris*, a genus of plants ranged by Linnæus among the *decandria monogynia*, and of which there is only one ſpecies.

This is a ſhrubby plant which grows naturally in the mountainous parts of Italy, Sicily, and Spain.

Culture of the Stinking Bean Trefoil.

It is beſt propagated by ſeeds, which ſhould be procured from the countries where it is a native, and ſown in dry weather, about the end of March, on a warm border of light earth. When the plants are come up, they ſhould be kept clear from weeds, and, if the ſeaſon proves dry, frequently watered.

If the ſucceeding winter ſhould prove ſevere, they muſt be covered with mats during the continuance of the froſt, but in mild weather let them be uſed to the open air, and in March following be tranſplanted into a nurſery-bed in rows at a foot diſtance one from the other, obſerving, if the ſeaſon ſhould prove dry, to water them till they have taken root, after which, during the ſummer they will require no other care but to be kept clean from weeds.

The next winter the plants muſt be ſheltered with ſome mats or peaſe-haulm, and ſome rotten tan ſpread over the ſurface of the ground. In two years time they will be fit to tranſplant to the places where they are deſigned to remain. The beſt time for removing them is March, before they begin to ſhoot; in doing this, great care muſt be taken not to injure their roots, and, if the weather ſhould require it, they muſt be watered till they have taken freſh root.

TRICOSANTHES, a genus of plants ranged by Linnæus among the *monoecia ſyngeneſia*, and of which there is only one ſpecies.

This plant is a native of China. It has a fibrous root, from which a number of ſtalks ſpread every way on the ground. The leaves are broad, deeply divided, rudely indented on the edges of thoſe larger ſegments, fixed on long foot-ſtalks, and of a ſhining green. The flowers riſe from the ſame joints with the leaves, ſupported on very long and ſlender pedicles; they are large, of a ſnow-white, and fringed with fine fibres. The fruit is long, ſlender, and often, but not always crooked; the colour is at firſt green, variegated with white, and ſpotted with a duſky purple, but afterwards purpliſh, and then yellowiſh intirely.

Culture of the TRICOSANTHES.

It is propagated by ſeeds, which ſhould be ſown in pots filled with the following compoſt:

Pare off the turf with three inches of the upper mould from a rich piece of paſture, and then take two barrows of the ſoil underneath: with this mix a barrow of dung from an old melon-bed, and the ſame quantity of earth from under a wood-pile: lay theſe together in autumn, and let them lie all winter, frequently turning the heap.

Early in ſpring fill two or three large pots with this earth, broke fine, and lay on the ſurface in each pot, half a dozen of the ſeeds: ſift over them a little of the ſame mould, give them a gentle watering, and ſet the pots up to the rim in a bark-bed, ſhading them from the ſun.

When the plants appear water them gently every night, and give them air in the middle of the day; and when you can diſtinguiſh which is the ſtrongeſt plants, near the centre of each pot, pull all the others up, and either deſtroy or plant them in other pots, but they will never ſucceed equal to the unremoved ones.

As thoſe left in the pots increaſe in ſize, they muſt be oftener watered and have more air: and after they have acquired as much ſtrength as can be given them in the bed, they muſt be ſet out in the middle of a hot day, and refreſhed at times with water; they may ſtand among the exotics as long as the weather is perfectly warm, but as they cannot bear cold, they muſt early be taken into ſhelter. About the end of ſummer they will flower, and the fruit will appear in autumn.

TRICOSTEMMA, a genus of plants of which there are only two ſpecies. 1. Tricoſtemma, with long ſtretched-out ſtamina. 2. Tricoſtemma, with ſhorter ſtamina.

The firſt ſpecies is a native of North-America, and the ſecond of Virginia.

Culture of the TRICOSTEMMA.

Both ſpecies are propagated by ſeeds, which ſhould be procured from the countries where they grow naturally, and ſown in autumn in pots, which in winter ſhould be placed under a garden-frame to ſhelter them from ſevere froſt, but ſhould be expoſed to the open air at all times when the weather is mild.

In the ſpring the plants will appear, and when they are fit to remove they ſhould be planted on a bed of light earth, ſhading them from the ſun till they have taken freſh root, after which they will only require to be kept clean from weeds.

TRIUMFETTA, a genus of plants of which there are two ſpecies. 1. Triumfetta, with three-pointed, ſawed leaves. 2. Triumfetta, with oblong, oval leaves, bluntly ſawed.

The firſt ſpecies is a native of the Weſt-Indies. It riſes with an upright ſtem ſeven feet high, dividing at the top into four or five branches. The leaves are nearly divided into three lobes, ending in acute points: they are covered with a brown down on their under-ſide, but their upper is of a yellowiſh green. Long ſpikes of ſmall yellow flowers terminate the branches, and grow from the ſides of the ſtalks in cluſters.

The ſecond ſpecies is a native of India. It ſeldom riſes above three feet high, branching out toward the top into three or four ſlender branches. The leaves are entire, ſawed on their edges, and end in acute points. The flowers terminate the ſtalks in ſmall cluſters, and are of a pale yellow colour.

Culture of the TRIUMFETTA.

Theſe ſpecies are both propagated by ſeeds, which ſhould be ſown on a hot-bed early in the ſpring. When the plants have four or five leaves, they ſhould be tranſplanted each into a ſeparate pot, and plunged into a moderate hot-bed of tanners-bark, where they muſt be ſhaded from the ſun till they have taken new root. During the ſummer the plants may remain in this hot-bed, but in autumn they muſt be removed into the ſtove, and plunged into the bark-bed, where they muſt be treated like other tender exotics.

TRUMPET-FLOWER, *Bignonia.* See the article BIGNONIA.

TUBEROSE, *Polianthes*, a genus of plants ranged by Linnæus among the *hexandria monogynia*, and of which there is only one ſpecies.

This plant is a native of India, and contains a variety with double flowers, and another with ſtriped leaves.

Culture of the TUBEROSE.

This plant, and its varieties, are propagated by planting the off-ſets upon a moderate hot-bed about the beginning of March, and covering the bed in cold weather with mats or ſtraw, and giving it plenty of water in dry weather. In this bed let the roots remain till the leaves decay in autumn: and if there ſhould happen any froſt before that time, the beds ſhould be covered to guard them from it. About the beginning of December let the roots be taken up, cleaned from the earth, and preſerved in dry ſand till the ſeaſon for planting them again.

But the beſt method of obtaining fine flowers, is to purchaſe ſome of the roots which are annually brought from Italy, and plant them at three different times: *viz.* the firſt the beginning of March, the ſecond the beginning of April, and the third the beginning of May.

The firſt planting muſt be on a moderate hot-bed, which ſhould have good rich earth laid upon the dung, about eight inches deep: over it ſhould be placed a frame; and when the bed is in a proper temperature of heat, the roots ſhould be planted at about ſix inches diſtance from each other every way, obſerving not to bury the upper part of the root more than one inch in the ground. After they are planted they will require but little water till they begin to ſhoot; but after that they muſt have it in great plenty, eſpecially if the weather is warm.

When the flower-ſtems begin to appear, a large ſhare of free air ſhould be admitted to the bed, and toward the beginning of May the frame may be quite taken off, and hoops faſtened over the bed to ſupport a covering of mats, which need never be drawn over but in the night, except the weather ſhould prove very cold.

The beds for the ſecond and third plantings will require a much leſs quantity of dung than that for the firſt. The ſecond bed ſhould be arched over with hoops, and covered with mats every night, and in bad weather ; but the laſt bed will require no covering.

The plants may remain in the beds till the flowers are near expanding, at which time they may be carefully taken up, preſerving the earth to their roots, and planted in pots, placing them in the ſhade for five or ſix days to recover their removal. As theſe plants advance in height, there ſhould be a ſtick put down in each pot, to which the ſtalks ſhould be tied.

When the flowers of the double ſort are fully formed and near opening, the pots ſhould be placed in an airy glaſs-caſe, to ſecure them from the dews and rains, which by falling on them would prevent the flowers from ever coming to perfection.

TUBEROUS ROOTS, ſuch as conſiſt of an uniform, fleſhy ſubſtance, and are of a roundiſh figure.

TUBULOUS PLANTS, ſuch whoſe ſtems or flowers, are hollow like a pipe.

TULIP, *Tulipa*, a genus of plants ranged by Linnæus among the *hexandria monogynia*, and of which there are only two ſpecies. 1. Tulip, with an erect flower, and oval, ſpear-ſhaped leaves. 2. Tulip, with a nodding flower, and narrow leaves.

The firſt ſpecies is a native of Cappadocia, and the ſecond of Ethiopia: from theſe many beautiful varieties have been raiſed by culture.

The characters of a good Tulip are, that the ſtem ſhould be ſtrong and tall, the flower ſhould conſiſt of ſix petals, three within and three without, and the former ſhould be larger than the latter: the bottom of the flower ſhould be proportioned to the top, and the ends of the petals ſhould be rounded : the petals, when opened, ſhould neither turn inward nor bend outward, but ſtand erect; and the whole flower ſhould be of a middling ſize, neither too large nor too ſmall : the ſtripes ſhould all riſe from the bottom of the flower: the chives alſo ſhould not be yellow, but of a brown colour.

Tulips are generally divided into three claſſes, according to their times of flowering: *viz.* the early, the middling, and the late. As it will be impoſſible for us to give a particular deſcription of every flower in this beautiful tribe, we ſhall confine ourſelves to a few in each claſs. Among the early Tulips are the White purple-edged Tulip, the painted Amethyſtine Tulip, and the embroidered Tulip.

White Purple-edged TULIP. The root is a bulb of a roundiſh, oval figure. The leaves are large, broad, hollow, pointed, and of a greyiſh green. The ſtalk is ten inches in height, ſlender, round, and not very robuſt, but it ſupports the flowers erect from the bud. On the ſummit of the ſtalk ſtands the flower, of a middling ſize, and the petals pointed : the ground colour is of a pearly white, but round the edge of each petal is continued a broad liſt of elegant purple ; the rib in the midſt of each petal has, towards its baſe, alſo a tinge of light purple, but this dies away as it advances upward.

This is the natural colouring of the flower, but culture enlarges its whole form, diverſifies the white with more ſtreaks of purple, rounds off the petals, and introduces other colours.

The flower is bell-ſhaped, having no cup : it is compoſed of ſix petals ſo arranged, that they form a hollow body, ſomewhat widening at the mouth.

Painted Amethyſtine TULIP. The root is bulbous, of an oblong ſhape, white within, and covered with a brown membrane. The leaves are large, broad, oblong, hollowed, waved at the edges, and of a pale greyiſh green. The ſtalk riſes in the midſt of theſe, and is firm and upright, fifteen inches high, of a pale green colour, duſted with a grey powder, and there are on it two or three leaves perfectly like thoſe from the root, but ſmaller. At the top ſtands one flower, large and of a fine and true ſhape : the ground colour is a pearly grey, with a tinge of faint crimſon diffuſed all over it, and the whole body inſide and out, is beautifully variegated with a deeper tinct, with ſome admixture of blueiſh ; this is diſpoſed in ſtripes, ſtreakes, and blotches, with a very pleaſing irregularity. The ſtripes are broad, and beginning from the bottom of the flower, are continued to the top : and the blotches, which are oblong, waved, and clouded, loſe themſelves in the ſame manner, at a ſmall ſpace from their origin, which is principally at the edges of the petals, near the top.

Embroidered TULIP. The root is bulbous, ſhort, fleſhy, and ſwelling out at the bottom. The colour is brown, and the outſide ſkin is often woolly. The leaves are long, but conſiderably broad, fleſhy, of a freſh green, with a light tinge of blue. The ſtalk is fourteen inches high, round, tolerably upright, and a little downy: its colour is a pale green, and it is uſually ſtreaked with red. There are commonly three leaves on it, but this is not certain : they are of the ſame ſhape with thoſe from the root, and are covered with a greyiſh duſt. One beautiful colour terminates the ſtalk; the ground colour is yellow, and on this is laid a vaſt deal of crimſon : this is not thrown in blotches, as in many kinds, but ſpread out naturally in a kind of rays ; thus much is certain and invariable in this Tulip, but a great deal of accidental change is ſeen in it ; the yellow is ſometimes as pale as lemon-peel, ſometimes perfect gold : and though the red has always the ſame crimſon tinct, it varies in degree from very pale to very deep.

Among the middling claſs of Tulips are the changeable Tulip, the golden Tulip, the bleeding Tulip, the pearl and crimſon Tulip, the Auriflame, or gold and ſcarlet Tulip, and the white and purple Tulip.

Changeable TULIP. The root is roundiſh, brown, and hung with thick fibres : firm in ſubſtance, and quite white within. The leaves are broad, waved at the edges, and ſharp-pointed. The ſtalk is fifteen inches high, tolerably upright, firm, and greyiſh. The flower is of the largeſt kind, and painted with a very bold and beautiful variety. The colours are three : a fleſhy crimſon, a pearly white, and a very bright yellow; theſe are laid on in an inexhauſtible ſeries of various forms, and from one variety make a thouſand. In general the white is the body or ground colour, but the red covers the greater part of the flower : and the yellow is not blended with theſe, or laid on like them in every petal, but here and there touched lightly in clouds upon the edges. But the perfection of the flower depends upon the proportion of red : if there is not a great deal of this the whole is faint ; yet there muſt always be left ſpace for the white and yellow, in both which the red may alſo ſhew itſelf in elegant ſtreaks.

Golden TULIP. The root is oblong, covered with a black ſkin, and hung with a few ſlight fibres. The leaves are very long, broad, hollow, of a blueiſh green, and pointed. The ſtalk is a foot high, round, pale, ſlender, and not very firm : it ſeldom ſtands perfectly upright, unleſs ſupported. The flower is moderately large, and of a perfect gold colour, untinged with any other. Its duration is a valuable conſideration : for it will out-laſt almoſt any other kind.

Bleeding TULIP. The root is large, round, firm, and covered with a duſky ſkin ; the fibres are numerous and long. The leaves are broad, waved at the edge, hollow, and of a pale, greyiſh green. The ſtalk is round, firm, upright, and eighteen inches high : thickeſt at the baſe, ſmaller to the top, and of a pale green. The flower is one of the largeſt of the Tulip kind, and very glowing in its colours ; theſe are only two, yellow and red, but they are very perfect in their kinds, and well diſpoſed in the flower ; the yellow is paler than what is uſually expreſſed by gold colour : the red is a deep crimſon, or rather a blood-colour ; the yellow is the ground tinct : the red is laid on in very delicate veins, and has the appearance of a fluid colour running down the flower : thence it obtained the name of bleeding Tulip. The ſtreaks are daſhed and broken in ſome places, but many of them are more diſtinct, and riſe from the very bottom of the flower, breaking and ſending out ſide daſhes as they riſe.

Pearl and Crimſon TULIP. The root is oblong and large, covered with a blackiſh ſkin, and hung with a few ſlight fibres. The leaves are very large, broad, hollow, waved, pointed, and of a blue green, but often brown in the hollow part. The ſtalk is firm, but not very thick: of a pale green, upright, and fourteen inches high. The flower is very regular in ſhape, and in the manner of opening; the ſix petals are in two ſeries, three within, three outward, and the three inner ones are longeſt, but not much ſo; the bottom of the flower is finely rounded, ſwelling in a due proportion to the height, and giving a free diſpoſure to the petals, without throwing them aſunder; the colours are only two, white and red: the white is the ground colour, and it is of that delicate kind called pearly white, having in it a tincture of greyiſh and blueiſh: the red is the moſt perfect crimſon, and diſpoſed in the flower with a very pleaſing regularity: it is laid on in even ſtains on the edges of the petals, which die away as they are continued narrower toward the middle.

Auriflame or Gold and Scarlet TULIP. The root is very large, oblong, covered with a brown ſkin, and white within. The fibres are long, thick, and numerous. The leaves are very large, broad, waved, pointed, and of a freſh green. The ſtalk is fifteen inches high, round, not very thick, and generally bent by the weight of the flower. The ſize and colouring of the flower render it very conſpicuous; the colours ſcarlet and gold, are diſpoſed in long, broad, and irregular ſtains, and the petals throw themſelves open as if to diſcloſe them.

White and Purple TULIP. The root is large, and covered with a thick deep brown ſkin. The ſtalk is upright, and a foot and a half in height: thickeſt at the baſe, ſmall toward the top, but firm throughout. The leaves are very broad and of a deep green, pointed at the ends, but leſs waved than many others. The flower is of a middling ſize, handſomely rounded at the baſe; the petals ſtand upright, neither bending in at the tops nor turning outward, and rounded at the ends: the ground colour is the moſt perfect white: and the purple, which forms the variegations, is laid on in fine, ſlender, and even ſtreaks: they run to the baſe of the petals, and ſpread themſelves in ſmaller portions over the whole flower.

Among the late claſs of Tulips are the cluſter Tulip, the flaming Tulip, the double Tulip, and the pearl and purple Tulip.

Cluſter TULIP. The root is very large and oblong, covered with a deep brown ſkin, and hung with many fibres. The leaves are numerous, broad, firm, greyiſh, waved at the edges, and pointed at the end: the larger lie on the ground, but there are ſeveral of the ſame form upon the ſtalk; this is two feet and a half high, round, firm, pale, divided toward the top into ſeveral branches, and covered with a greyiſh hoaryneſs. The leaves are placed alternate on the ſtem, and at the top of every branch ſtands one vaſt flower; the form is that of other Tulips: the colour a duſky red, ſometimes a deep yellow, with a violet, black, or duſky baſe, naturally terminated on each petal by a white line.

Flaming TULIP. The root is large, and covered with a blackiſh ſkin. The leaves are very broad, of a greyiſh green, waved at the edges, of a firm ſubſtance, and hollow. The ſtalk is thick and upright, a foot high, and of a pale colour; there are two or three leaves on it, like thoſe from the root, and at the top a ſingle flower: the ground colour is a pure ſnowy white: the variegations are red and yellow, and there are in the beſt flowers ſeveral gradations between the two colours, ſuch as flame colour, orange, and ſaffron, beſide the perfect red, and the pure yellow; in general the red lies in broad and deep veins down the petals, and the yellow forms a kind of embroidery down the edge.

Late Double TULIP. The root is bulbous, and moderately large. The leaves are broad, oblong, hollow, waved at the edges, and of a blueiſh green. The ſtalk is ten inches high and weak; the leaves on it reſemble thoſe from the root, and at its top ſtands a ſpecious and beautiful flower: the ground is crimſon, and the points and edges of the petals are uſually white: often that colour is diſperſed in wild ſtains over the reſt of the flower, and ſometimes it occupies the greater part of its ſurface; the inner petals are tinged in the ſame manner: their ground is a light crimſon, but the white is finely laid on in long ſtreaks, and often there runs between theſe a rib of fleſh colour.

Pearl and Purple TULIP. The root is ſmall, oblong, and covered with a cheſnut-coloured ſkin. The leaves are broad and ſhort, hollow, obtuſe, not much waved at the edges, and of a blue green. The ſtalk is weak and ſlender: it is uſually near a foot in length, but, unleſs ſupported, does not carry the flower erect; there are two or three leaves from it altogether, like thoſe from the root, and at the top ſtands one elegant flower. The colours are a very delicate pearly white, and a fine purple: the white is the ground colour, and the purple is laid on in oblique ſtreaks, from the central part of each petal to the edge, and in a few waved lines at the top; theſe are ſmall, like threads, in the moſt perfect ſtate of the flower, and lie ſo near one another, that at a very little diſtance, the diſtinction is loſt between them and the white ſpaces, and they give an univerſal glow of purple to the flower.

Culture of the TULIPS.

The ſame method of culture is proper for all Tulips. The uſual manner of propagating them is by parting the root, but the only way to obtain new flowers is from ſeed; in May therefore the gardener ſhould look carefully over his bed of Tulips, and mark a certain number for ſeed, being cautious that they have all the characters which conſtitute a good flower, and which we have deſcribed in the beginning of this article; when he has fixed on a ſufficient number, he muſt ſhade them from too much ſun, which would dry up the duſt upon the buttons, on whoſe good condition the perfection of the ſeeds depends. When the flowers begin to fade, all the ſtems which ſtand near thoſe deſigned for ſeed, muſt be cut down, and the mould broke with a trowel every other day, half an inch deep, allowing at the ſame time gentle waterings. In this manner let them be managed till the ſeed-veſſel has its full bigneſs, after which no more water muſt be given. The ſtalks will ſoon ſhew that no more nouriſhment is given them from the root; they may be then cut off, and laid to dry in an airy room, where a ſmall ſhelf ſhould be hung from the cieling, covered with cartridge-paper, and ſecured by an edge of the ſame, half an inch high: on this lay the heads, and every three days turn them; thus let them lie till the third week in Auguſt: then let them be opened, and the ſeeds carefully ſhook out: ſcatter them over the ſhelf, where they muſt again be turned every three or four days till they are ſown.

In the middle of September the gardener ſhould fix upon a piece of ground that is open to the ſouth-eaſt, defended from the full noon-day ſun, and naturally open to the north: but a reed-hedge ſhould be placed on that quarter, on a hinge, ſo that it can be brought forward to ſhelter the ſpot in ſevere weather: let the mould be dug out of the border, and its place ſupplied with the following compoſt, which ſhould always be made as ſoon as the flowers are marked for ſeed. Mix together two buſhels of dry mould from under the turf in an upland paſture, five pecks of pond-mud, and three pecks of earth from under an old wood-pile.

The border being ready, ſcatter on the ſeeds moderately thick, ſift over them a quarter of an inch of the ſame compoſt, and give them a gentle watering: after which lay a few light hawthorn-buſhes over the border, and during winter the few weeds which riſe on the bed muſt be carefully pulled up while they are young, obſerving alſo to bring the reed-hedge forward for ſhelter all the hard weather.

In ſpring let the reed-hedge be thrown open, the buſhes taken off, and the ground carefully looked over and weeded once a week. The young plants will ſoon appear in great numbers; they will require frequent weeding, and muſt be watered once in three or four days, gently, with a fine-noſed pot. In weeding the utmoſt caution muſt be uſed: for the young plants have vaſtly the appearance of graſs, but they may always be diſtinguiſhed by their bringing up the huſk of the ſeed with them.

The firſt appearance of the plants will be at the latter end of March, and toward the middle of June the leaves will decay: then let the ſurface of the bed be raked, and half an inch of freſh compoſt ſifted over it; thus the roots may remain till the ſame time the ſucceeding year, when they ſhould be removed: and for this purpoſe a freſh parcel of the compoſt ſhould be mixed in autumn, and lie all the winter; take out the mould from the border, with the roots, and fill it up with this freſh compoſt: then ſift the mould that was taken out, to ſeparate the roots, and, after having given the new border a gentle watering, plant them in it with care, at about three fingers breadth diſtance, and cover them with two inches of the ſame compoſt. The next year, at the ſame ſeaſon, let the ſame operation be repeated; and thus they are to be managed for the four firſt years, and in all theſe tranſplantings the compoſt ſhould be laid about five inches thick, and the bottom trod hard before it is put in; after the fourth year the quantity of compoſt muſt be four times as much as at firſt: the border much larger and deeper, and the roots muſt be planted at a full finger's length diſtance.

The fifth year ſome of them will probably flower: the ſixth year the generality: and the ſeventh, or eighth, all. When they are in full bloom, ſome upright poſts about four feet high ſhould be placed on each ſide of the bed, at a moderate diſtance, and over theſe ſome hoops ſhould be carried, to ſupport a canvas, which ſhould be drawn over them from eleven in the morning to four in the afternoon every day, when the ſun is powerful. It muſt alſo be drawn when there are ſharp winds, haſty ſhowers, or ſevere nights.

The fine and perfect Tulips ſhould never be ſuffered to ripen their ſeeds; therefore, as ſoon as the flowers decay, let the ſtalks be broke off, and take away the covering. In the middle of June the roots muſt be carefully taken out of the ground, cleaned, and the looſe, ragged, outer ſkins pulled off: lay them upon a mat in an airy room, and when they are hardened, lay them in a place which is not moiſt, neither muſt it be too cloſe.

The off-ſets ſeparated from the principal roots muſt be managed exactly in the ſame manner, and planted in autumn three weeks ſooner than the large roots, in ſeparate beds.

The general time of planting the fine Tulip roots, is in the beginning of October, but the early kinds ſhould be put into the ground three weeks ſooner; they muſt be allowed all means of defence, and it is beſt to plant them where there is the ſhelter of a warm wall: and if the weather ſhould come in ſevere juſt as their buds riſe, they muſt be covered: the ſurface of the mould ſhould be ſtirred, and afterwards, if the ſeaſon be dry, they muſt be allowed with due care a little water.

African TULIP. See the article *African* Tulip.

TULIP-TREE, *Liriodendrum*, a genus of plants ranged by Linnæus among the *polyandria polygynia*, and of which there is only one ſpecies. It is a native of North-America, where it grows to a great ſize. The young ſhoots are covered with a ſmooth bark. The leaves are divided into three lobes, the middle one being blunt and hollowed at the point, appearing as if it had been cut with ſciſſars; the two ſide lobes are rounded, and end in blunt points: the upper ſurface is ſmooth, and of a lucid green, the under-ſide is of a pale green. The flowers grow at the end of the branches; they are compoſed of ſix petals, three without and three within, which form a ſort of bell-ſhaped flower, from whence it obtained the name of Tulip; theſe petals are marked with green, yellow, and red ſpots, ſo make a fine appearance when the trees are well charged with flowers. The time of this tree's flowering is in July, and when the flowers drop, the germen ſwells and forms a kind of cone: but theſe do not ripen in England.

Culture of the Tulip-tree.

It is propagated by ſeeds, which ſhould be obtained in the cones from America. In ſpring they ſhould be taken out of the cones, and ſown in pots, filled with freſh light earth, which muſt be placed in a bark-bed, and covered with mats, and frequently refreſhed with a little water. When the young plants appear, they ſhould be placed, during ſummer, in a ſhady ſituation: and in winter they ſhould be put into a frame, where they may have the benefit of the open air in mild weather, and be ſheltered from the ſeverity of froſt.

In the ſpring following the plants ſhould be tranſplanted into ſmall pots, and taken the ſame care of for four years, as while they were in the ſeed-pots; after this they will be ſtrong enough to tranſplant finally into the places where they are to remain: it ſhould be on a light loamy ſoil near other trees, but not overſhaded by them.

There are ſome who raiſe them from layers, but they are two or three years before they take good root, and then never make ſuch ſtrait and regular trees.

Laurel-leafed TULIP-TREE, *Magnolia*, a genus of plants ranged by Linnæus among the *polyandria polygynia*, and of which he diſtinguiſhes no more than one ſpecies, with ſeveral varieties: all diſtinct ſpecies according to other botaniſts.

It is a native of Carolina and Virginia.

Culture of this Tulip-tree.

It is propagated by ſeeds, which ſhould be procured from the place of their natural growth, and ſown as ſoon as poſſible after they are ripe, in pots; the pots ſhould be plunged into a moderate hot-bed: when the plants come up, they ſhould, in hot weather, be ſhaded from the ſun with mats, and have air and water. In the winter ſeaſon they ſhould be ſecured from the froſt; and when they have acquired ſtrength, they may be planted in the open air, in a warm, ſheltered ſituation.

TURKS-CAP, a ſpecies of Lily. See the article Lily.

TURNEP, *Rapa*, a ſpecies of the Cabbage or Braſſica, is commonly propagated in the fields, and conſiſts of the following varieties: The round Turnep, with the red or purple top, the yellow Turnep, the black-rooted Turnep, and the early Dutch Turnep.

Thoſe commonly cultivated in our gardens for the uſe of the table, are the white and the purple-rooted Turnep. They thrive beſt in a dry ſandy ſoil, that is not too rich: if it is, they are apt to grow ſticky; they are always the beſt taſted when produced on freſh lands.

Culture of the Turnep.

The common time of ſowing them is from the beginning of July to the middle of Auguſt, but the gardeners about London ſow them every month from March to Auguſt, that they may have a conſtant ſupply. The early Turneps always ſucceed beſt when ſown on a moiſter ground than the others: for on a dry one they are often ſubject to great damage, and are ſometimes deſtroyed by the fly.

TURNERA, a genus of plants of which there are only two ſpecies. 1. Turnera, with linear, ſpear-ſhaped, hairy leaves, which are obtuſely indented and acute-pointed. 2. Turnera, with oval, ſpear-ſhaped leaves, which are ſawed and rough.

Theſe plants are both of them natives of the warm parts of America. The firſt riſes with a ſhrubby ſtalk to the height of eight or ten feet, ſending out branches on every ſide. The leaves are narrow, ſpear-ſhaped, and hairy, terminating in acute points, ſawed on their edges, and, when rubbed, emit a diſagreeable odour. The flowers grow from the foot-ſtalks of the leaves, to which they ſit very cloſe, having two large leafy appendages to their empalements; the flowers are of a pale yellow.

The ſecond ſpecies has a ſhrubby ſtalk like the firſt, and riſes to near the ſame height. The branches are ſlender. The leaves are oval, ſpear-ſhaped, rough on their upper ſide, and of a lucid green; their under-ſide has many ſtrong veins, and is of a light colour: they are ſawed on their edges, and have long foot-ſtalks. The flowers are larger, and of a brighter yellow than thoſe of the former.

Culture of the Turnera.

Theſe plants are eaſily propagated by ſeeds, which ſhould be ſown on a hot-bed early in the ſpring; and when the plants are come up two inches high, they ſhould be tranſplanted into ſmall pots, and plunged into a hot-bed of tanners-bark, obſerving to water and ſhade them till they have taken root: after which they muſt be treated as has been directed for other tender plants from the ſame countries.

When the plants are grown pretty large, they may be treated more hardily, by placing them in the dry ſtove, where, if they are kept in a moderate degree of heat, they will thrive and flower very well.

Thoſe who would ſave the ſeeds of theſe plants, muſt watch them carefully, becauſe when they are ripe, they ſoon ſcatter if they are not gathered.

TURNSOLE, *Heliotropium.* See the article HELIOTROPE.

TURPENTINE-TREE, a ſpecies of Piſtacia. See the article PISTACIA.

TUTSAN, a ſpecies of St. Johnſwort. See the article *St.* JOHNSWORT.

U.

VALERIAN, *Valeriana*, a genus of plants ranged by Linnæus among the *triandria monogynia*, and of which he enumerates ſixteen ſpecies: but ſome of theſe, growing naturally in England, and others in different parts of Europe, which are never admitted into gardens, we ſhall omit, and only deſcribe the nine following. 1. Valerian, with flowers furniſhed with tails, one ſtamen, and ſpear-ſhaped, entire leaves; or red Valerian. 2. Valerian, with flowers furniſhed with one ſtamen, and wing-pointed leaves. 3. Valerian, with a ringent flower, furniſhed with two ſtamina, and oval, ſeſſile leaves. 4. Valerian, with three ſtamina to the flowers, and all the leaves winged. 5. Valerian, with three ſtamina to the flowers, winged leaves to the ſtalks, and thoſe at the root undivided; or garden Valerian. 6. Valerian, with three ſtamina to the flowers, and oblong, oval, blunt, entire leaves. 7. Valerian, with three ſtamina to the flowers, and heart-ſhaped, ſawed leaves, growing on foot-ſtalks, and placed by threes at the top. 8. Valerian, with three ſtamina to the flowers, a ſtalk divided into pairs, and linear leaves; called Corn Sallad, or Lambs Lettuce. 9. Valerian, with four equal ſtamina to the flowers, wing-pointed leaves, and ſeeds faſtened by an oval huſk

The firſt ſpecies grows naturally upon ſtony places in France, Switzerland, and Italy, and has been long propagated in the Engliſh gardens for ornament. The ſecond ſpecies is a native of Portugal. The third of America, Mauritania, Sicily, and Spain. The fourth of England. The fifth and ſixth of the mountains of Switzerland. The ſeventh of the Pyrenean mountains. The eighth of England; and the ninth of Siberia.

Culture of the VALERIAN.

The firſt ſpecies is propagated by parting the roots in autumn, or by ſowing the ſeeds, ſoon after they are ripe, in a ſhady border. When the plants are fit for removing, they ſhould be tranſplanted into beds at about nine inches, or a foot aſunder, obſerving to water them till they have taken new root; after which they muſt be kept clean from weeds, and in autumn they ſhould be tranſplanted to the places where they are to remain.

The ſecond ſpecies is propagated by ſowing the ſeeds ſoon after they are ripe: and when the plants come up, they will only require to be watered in dry weather.

The third ſpecies is propagated by ſeeds, which ſhould be ſown in autumn, where the plants are to remain. When they come up, they muſt be kept free from weeds, which is all the culture they require.

The fourth, fifth, and ſixth ſpecies are propagated by parting of the roots in ſpring or autumn; thoſe of the two firſt ſorts ſhould be planted in beds of freſh dry earth, but the laſt requires a ſtony ſoil, and a cold ſituation. When the plants come up they muſt be watered, if the ſeaſon requires it, and kept clean from weeds.

The ſeventh ſpecies is propagated by ſowing the ſeeds, ſoon after they are ripe, upon a ſhady border. When the plants come up, they may be treated in the manner directed for the firſt ſort.

For the eighth ſpecies, ſee the article *Lambs* LETTUCE.

The ninth ſpecies is propagated by ſeeds, which ſhould be ſown where the plants are to remain, either in autumn, ſoon after they are ripe, or in the ſpring. When the plants come up let them be thinned where they grow too cloſe, and kept clean from weeds.

Greek VALERIAN, or *Jacob's* LADDER, *Polemonium*, a genus of plants ranged by Linnæus among the *pentandria monogynia*, and of which there are three ſpecies. 1. Greek Valerian, with cups longer than the tube of the corolla. 2. Greek Valerian, with cups ſhorter than the tube of the corolla. 3. Greek Valerian, with the lower leaves haſtated, and the upper ones lanceolated.

The firſt ſpecies is ſuppoſed to be a native of England, and the other two grow naturally in North-America.

Culture of the Greek VALERIAN.

All the three ſpecies are propagated either by ſowing their ſeeds or by parting their roots. If by ſeeds, they ſhould be ſown in ſpring upon a bed of light earth. When the plants are come up, and have acquired ſome ſtrength, they ſhould be pricked out into another bed of the like earth, about four or five inches aſunder, obſerving to ſhade and water them till they have taken new root; after which they muſt be kept clean from weeds, and about the beginning of October tranſplanted into the borders of the flower-garden.

If they are propagated by parting of the roots, it ſhould be done in autumn; and when the plants come up, they muſt be treated in the manner directed for the ſeedings.

VARIEGATION, the art of ſtreaking or diverſifying the leaves, &c. of plants and flowers with ſeveral colours.

Variegation is either natural or artificial. Of natural variegation there are four kinds; the firſt ſhewing itſelf in yellow ſpots here and there, in the leaves of plants called, by gardeners, the yellow blotch. The ſecond kind, called the white blotch, marks the leaves with a great number of white ſpots, or ſtripes; the whiteſt lying next the ſurface of the leaves, uſually accompanied with other marks of a greeniſh white, that lie deeper in the body of the leaves. The third, and moſt beautiful, is where the leaves are edged with white, being owing to ſome diſorder or infection in the juices, which ſtains the natural complexion or verdure of the plant. The fourth kind is that called the yellow edge.

Artificial variegation is performed by inarching or inoculating a ſtriped or variegated plant into a plain one of the ſame ſort; as a variegated common jaſmine into a plain, common Spaniſh, Brazil, or Indian jaſmine. A ſingle bud or eye, Mr. Bradley obſerves, being placed in the eſcutcheon of a diſtempered tree, where it can only receive nouriſhment from the vitiated juices, will become variegated proportionably to the nouriſhment it draws, and will partake more of the white and yellow juice, than if a branch ſhould be inarched, the bud having nothing to nouriſh it but the juices of the plant it is inoculated on; whereas a cyon inarched is fed by the ſtriped plant, and the healthful one.

As to the natural ſtripes or variegations, there are ſome particular circumſtances to be obſerved.

1. That ſome plants only appear variegated or blotched in the ſpring and autumn, the ſtains diſappearing as they gather ſtrength: of this kind are rue, thyme, and marjoram.

2. Some plants are continually blotched in the ſpongy part of their leaves: the ſap-veſſels, all the time, remaining of a healthful green: ſuch as the alaternus, orange-mint, &c. which, being ſtrengthened by rich manure, or being inarched in healthful plants, throw off the diſtemper.

3. In other plants, the diſeaſe is ſo rooted and inveterate, that it is propagated with the ſeeds: ſuch as the arch-angel, water-betony, bank creſs, borrage, ſtriped celery, and ſycamore; the ſides of which produce ſtriped plants.

VASCULIFEROUS PLANTS, ſuch whoſe ſeeds are contained in veſſels which are ſometimes divided into cells.

VEGETABLE, a term applied to all plants conſidered as capable of growth, that is, all natural bodies which have parts organically formed for generation and accretion, but not ſenſation. See the article PLANT.

VEGETATION, the act whereby plants receive nouriſhment and grow.

The proceſs of nature, in the vegetation of plants, is very accurately delivered by the excellent Malpighi, to the effect following: the egg, or ſeed of the plant being excluded out of the ovary, called pod, or huſk, and requiring farther foſtering and brooding, is committed to the earth; which having received it into her fertile boſom, not only does the office of incubation, by her own warm vapours and exhalation, joined with the heat of the ſun; but by degrees, ſupplies what the ſeed requires for its further growth: as abounding every where with canals and ſinuſes, wherein the dew of rain-water, impregnated with fertile ſalts, glide, like the chyle and blood in the arteries, &c. of animals.

This moiſture meeting with a new depoſited ſeed, is percolated, or ſtrained through the pores or pipes of the outer rind, or huſk, correſponding to the ſecundines of the fœtuſes, on the inſide whereof lies one or more, commonly two, thick ſeminal leaves, anſwering to the placenta in women, and to the cotyledons in brutes. Theſe ſeed-leaves conſiſt of a great number of little veſiculæ, or bladders, with a tube correſponding to the navel-ſtring in animals. In theſe veſicula is received the moiſture of the earth, ſtrained through the rind of the ſeed; which makes a ſlight fermentation, with the proper juice before contained therein. This fermented liquor is conveyed by the umbilical veſſel to the trunk of the little plant; and to the germ, or bud, which is contiguous thereto: upon which the vegetation and increaſe of the parts ſucceed.

Such is the procedure in the vegetation of plants; which the illuſtrious author exemplifies in a grain of wheat, as follows: The firſt day the grain is ſown it grows a little turgid; and the ſecundine, or huſk, gapes a little in ſeveral places: and the body of the plant, being continued by the umbilical veſſel to a conglobated leaf (which is called the pulp or fleſh of the ſeed, as is what conſtitutes the flower) ſwells; by which means, not only the gem or ſprout (which is to be the future ſtem) opens, and waxes green, but the roots begin to bunch out; whence the placenta, or ſeed-leaf, becoming looſe, gapes. The ſecond day, the ſecundine, or huſk, being broke through, the ſtem or top of the future ſtraw, appears on the outſide thereof, and grows upwards by degrees: in the mean time, the ſeed-leaf, guarding the roots, becomes turgid with its veſicula, and puts forth a white down. And the leaf being pulled away, you ſee the roots of the plant bare; the future buds, leaves, and the reſt of the ſtalk lying hid. Between the roots and the aſcending ſtem the trunk of the plant is knit, by the navel-knot to the flower-leaf, which is very moiſt, though it ſtill retains its white colour and its natural taſte.

The third day the pulp of the conglobated, or round leaf, becomes turgid with the juice which is received from the earth fermenting with its own. Thus the plant increaſing in bigneſs, and its bud or ſtem becoming taller, from whitiſh turns greeniſh; the lateral roots alſo break forth greeniſh and pyramidal from the gaping ſheath, which adheres chiefly to the plant; and the lower root grows longer and hairy, with many fibres ſhooting out of the ſame. Indeed there are hairy fibres hanging all along on all the roots, except on their tips; and theſe fibres are ſeen to wind about the ſaline particles of the ſoil, little lumps of earth, &c. like ivy; whence they grow curled. Above the lateral roots there now break out two other little ones.

The fourth day, the ſtem, mounting upwards, makes a right angle with the ſeminal leaf: the laſt roots put forth more; and the other three, growing larger, are cloathed with more hairs, which ſtraitly embrace the lumps of earth, and where they meet with any vacuity, unite into a kind of net-work. From this time forward the root puſhes with more regularity downward, and the ſtalk upward, than before. There is, however, this great difference in their growth, that the ſtalk and the branches find no reſiſtance to their ſhooting up, while the roots find a great deal to their ſhooting downward, by means of the ſolidity of the earth, whence the branches advance much faſter and farther in their growth than the roots: and theſe laſt, often finding the reſiſtance of a tough earth inſurmountable, turn their courſe, and ſhoot almoſt horizontally.

VENUS'S COMB, or SHEPHERD'S NEEDLE. See the article SHEPHERD'S NEEDLE.

VENUS'S LOOKING-GLASS, a ſpecies of Campanula. See CAMPANULA.

VENUS NAVELWORT, a ſpecies of Hound's Tongue. See the article HOUND'S TONGUE.

VERBESINA, a genus of plants ranged by Linnæus among the *ſyngeneſia polygamia ſuperflua*, and of which there are ten ſpecies, but of theſe there are only four to be met with in our gardens. 1. Verbeſina with alternate, waved, running and obtuſe leaves. 2. Verbeſina, with oval three-veined leaves, placed oppoſite upon footſtalks, and with ſeeds furniſhed with three horns. 3. Verbeſina with ſpear-ſhaped, ſawed leaves, placed oppoſite. 4. Verbeſina with oppoſite, ſpear-ſhaped, ſawed leaves, and double, alternate, ſeſſile flowers.

Theſe plants are natives of both the Indies.

Culture of the VERBESINA.

All the four ſpecies are propagated by ſeeds, which ſhould be ſown upon a moderate hot-bed in the ſpring. When the plants have obtained ſtrength enough to be removed, they muſt be tranſplanted on a freſh hot-bed, ſhading them from the ſun till they have taken new root.

In June they may be taken up, and planted in a warm border, where they muſt be ſhaded, and watered till they have again taken root, after which they will require very little care.

VERVAIN, *Verbena*, a genus of plants ranged by Linnæus among the *diandria monogynia*, and of which there are fourteen ſpecies. 1. Vervain with two ſtamina to the flowers, and very long leafy ſpikes. 2. Vervain with two ſtamina to the flowers, and very long, fleſhy ſpikes, almoſt naked. 3. Vervain with two ſtamina to the flowers, oval ſpikes, ſpear-ſhaped, ſawed, plaited leaves, and a ſhrubby ſtalk. 4. Vervain with two ſtamina to the flowers, looſe ſpikes, priſmatic, truncated, bearded, and alternate cups, and oval, obtuſe leaves. 5. Vervain with two ſtamina to the flowers, looſe ſpikes; the cups of the fruit almoſt globular, prickly, and reflexed downward. 6. Vervain with two ſtamina to the flowers, roundiſh, erect cups, and echinated ſeeds. 7. Vervain with two ſtamina to the flowers, long ſpikes, bearded cups, and oval, ſharply-ſawed leaves. 8. Vervain with four ſtamina to the flowers, ſpikes growing in conical heads, ſawed leaves, and a creeping ſtalk. 9. Vervain with four ſtamina to the flowers, ſpikes diſpoſed in bunches, and ſpear-ſhaped leaves embracing the ſtalks. 10. Vervain with four ſtamina to the flowers, long, acute-pointed ſpikes, and ſpear-ſhaped leaves. 11. Vervain with four ſtamina to the flowers, ſlender ſpikes, growing in panicles, and undivided, ſawed leaves, with footſtalks. 12. Vervain with four ſtamina to the flowers, ſlender ſpikes, leaves with many jagged points, and numerous ſtalks. 13. Vervain with four ſtamina to the flowers, ſlender ſpikes, diſpoſed in panicles, leaves with many pointed jags, and a ſingle ſtalk. 14. Vervain with four ſtamina to the flowers, ſlender ſpikes, and double wing-pointed leaves.

The eight firſt ſpecies are natives of the Weſt Indies. The ninth grows naturally in Buenos Ayres. The tenth, eleventh, and twelfth are natives of North-America. The thirteenth of this country, and the fourteenth of Spain.

Culture of the Vervain.

The eight firſt ſpecies are propagated by ſowing the ſeeds upon a hot-bed early in the ſpring. When the plants are fit to be removed, they ſhould each be tranſplanted into a ſeparate ſmall pot, and plunged into a freſh hot-bed, where they muſt be ſhaded with mats in the heat of the day, till they have taken freſh root.

When the annuals are grown too tall for the frames, they ſhould be removed into a ſtove or good glaſs-caſe, and if there is the conveniency of a bark-bed in the glaſs-caſe, ſome of them ſhould be plunged into it.

The perennial ſorts may be kept in a glaſs-caſe till autumn, allowing them a large ſhare of air in warm weather. As they increaſe in ſize, they ſhould be tranſplanted into larger pots. The ſeventh ſpecies is by far the moſt tender, and muſt be conſtantly kept in the bark-bed.

The ninth, tenth, eleventh, and twelfth ſpecies, are propagated by ſeeds, which ſhould be ſown in autumn, on a ſoft loamy ſoil; when the plants come up they require no other culture but to be kept clean from weeds, and to be allowed room to ſpread.

The thirteenth ſpecies is ſeldom admitted into gardens.

The fourteenth ſpecies is propagated by ſeeds, which ſhould be ſown in autumn. When the plants come up, they muſt be kept clean from weeds, and thinned where they riſe too cloſe.

Hatchet VETCH. See the article *Coronilla.*

Bitter VETCH, *Orobus*, a genus of plants ranged by Linnæus among the *diadelphia decandria*, and of which there are a number of ſpecies, but the four following are thoſe moſt commonly propagated in gardens. 1. Bitter Vetch with leaves placed by couples cloſe to the ſtalks, and with indented ſtipulæ. 2. Bitter Vetch with oval, oblong, winged leaves, roundiſh, moon-ſhaped, indented ſtipula, and a ſingle ſtalk. 3. Bitter Vetch with oval, winged leaves, intire, half arrow pointed ſtipulæ, and a ſingle ſtalk. 4. Bitter Vetch with a branching ſtalk, and leaves compoſed of ſix pair of oblong, oval lobes.

The firſt and ſecond ſpecies are natives of Siberia, and the third and fourth grow naturally in the foreſts of Germany and Switzerland.

Culture of the Bitter Vetch.

All theſe plants may be propagated either by ſeeds or by parting of their roots. If by ſeeds they ſhould be ſown in autumn. When the plants come up, they ſhould be kept clean from weeds and thinned where they grow too cloſe, and in the next autumn they ſhould be tranſplanted to the places where they are deſigned to remain.

If they are propagated by parting the roots, the proper time for it is autumn; and they ſhould be planted in a loamy ſoil, and a ſhady ſituation.

Liquorice VETCH. See the article *Wild* Liquorice.

Chickling VETCH, *Lathyrus*, a genus of plants of which there are twenty ſpecies; but as few of theſe are admitted into gardens, and thoſe which are, all require the ſame culture it is needleſs to deſcribe them.

Culture of the Chickling Vetch.

All the ſpecies cultivated in gardens, are propagated by ſeeds, which may be ſown either in ſpring or autumn, in the places where they are deſigned to remain. Thoſe which are ſown in autumn, ſhould have a light ſoil and a warm ſituation; but thoſe which are ſown in the ſpring ſhould have an open expoſure, and the ſoil need not be attended to, for they thrive upon almoſt any. When the plants come up they ſhould be carefully kept clean from weeds, and when they are grown two or three inches high, ſome ſticks ſhould be put down by them, to ſupport them, otherwiſe they will trail on the ground.

Horſeſhoe VETCH, *Hippocrepis*, a genus of plants of which there are three ſpecies. 1. Horſeſhoe Vetch with ſingle pods ſitting cloſe to the ſtalk. 2. Horſeſhoe Vetch with pods growing in cluſters upon ſootſtalks. 3. Horſeſhoe Vetch with pods growing in cluſters, upon footſtalks, one border of which has lobes.

The firſt ſpecies is a native of Italy and Spain. The ſecond of England, and the third grows naturally in Germany, Italy, and the ſouth of France.

Culture of the Horſeſhoe Vetch.

The three ſpecies are all propagated by ſeeds, which ſhould be ſown in autumn, where the plants are deſigned to remain; when they come up they muſt be kept clean from weeds, and thinned where they riſe too cloſe, which is all the culture they require.

Kidney VETCH. See the article *Ladies* Finger.

VEXILLUM, or STANDARD. See the article Standard.

VINE, *Vitis*, a genus of plants ranged by Linnæus among the *pentandria monogynia*, and of which there are ſeveral different ſorts, all of them requiring the ſame method of culture in the ſame climate.

Culture of the Vine.

This plant grows as happily in plains as upon hills, and thrives as well in a ſtrong ſoil, as in that which is looſe and open; alſo in land that is poor, as in that which is rich: and in a dry ſoil, as well as in that which is naturally moiſt.

Neverthelefs, it is of great importance that the quality of the Vine be adapted to the condition of the country: for as Vines are not all of the ſame kind, neither is the culture the ſame in every ſoil and climate. It is not eaſy to ſay which is the beſt, experience teaching us that every country has its own: but reaſon will inform us that that ſort of Vine is proper for the plain, which bears fogs and hoar froſt without being hurt: and for a hill, that which can bear drought and wind; that we ſhould plant in a rich and fertile ſoil, a ſlender Vine, which does not bear plenty of fruit; in a ſtiff ſoil, one that makes ſtrong ſhoots, and is covered with plenty of leaves; that it is proper not to commit to a moiſt place a Vine which bears tender and large grapes; nor too dry a place, a Vine of a contrary quality.

The nature of the climate is of great conſequence. Two ſorts of Vines are fit for a cold and cloudy ſituation: *viz.* either one which is early, and ripens its fruit before the winter: or one of firm and hard grapes, which bloom in the midſt of fogs, and afterwards mellow with the cold and hoar-froſt, as other grapes do with warmth. Where wind and ſtorms are frequent, the Vines muſt take deep root, and bear hard grapes; where the ſituation is warm, they may be of more tender and more fruitful kinds. Vines, whoſe grapes rot with rain and conſtant dews, ſhould be planted in dry places; and thoſe in moiſt, which are hurt by drought. If any Vines are planted in places ſubject to hail, it ſhould be thoſe which have large and ſtrong leaves, becauſe they willl ſhelter the fruit. Where the ſky is uſually ſerene and fair, all ſorts of Vines will grow: and thoſe may be planted to advantage, whoſe grapes fall quickly off.

Could we have the quality of the ſoil, the ſituation of the place, and the ſtate of the weather to our wiſhes; that ſoil ſhould be preferred, which is neither too ſtrong nor too looſe, but rather inclining to looſe: neither poor, nor exceeding rich, but rather fertile. The ſituation ſhould neither be a plain nor ſteep, but yet on a riſing ground: it ſhould neither be wet nor dry, yet moderately moiſtened with dews: it ſhould neither have ſprings on the ſurface, nor at ſome depth in the earth: and yet it ſhould communicate to the Vines a moiſture which is neither bitter nor ſalt. The ſtate of the moiſture may be known, by diſſolving ſome of the earth in water.

The Vine does not proſper either in a frozen, or in a ſcorching climate, but it thrives beſt in a country that is rather warm than cold. It is hurt more by rain than dry weather: it delights in gentle and moderate gales, but is greatly damaged by ſtorms.

It is an obſervation of long ſtanding, that ground which has never been plowed, or had trees growing on it, is the beſt for a vineyard. All authors agree that an old vineyard is the worſt of any for making a new plantation: becauſe the earth is entangled with the roots of the old Vines matted together, poiſoned by their decay, and quite exhauſted by their long ſtanding. Woodlands may be uſed, becauſe the roots of common trees and ſhrubs are eaſily extirpated. Where there is no unplowed land, the next to be preferred is a corn field, free from trees, or where trees have not been planted thick.

The fitneſs of new ground: for the Vine may be judged of by the ſhoots of ſuch as grow naturally in it: for if they make thriving ſhoots, which have not a ragged or ſtinted appearance, the Vine will flouriſh there. Stones which crumble, or rot, as it were, with the weather being broken, and laid to the roots of the Vines, retain a moiſture, cool them, and by that means are exceeding fit for nouriſhing them. For the ſame reaſon, gravel, pebbles, and looſe ſtones are approved of, provided they be mixed with rich mould; but if they are mixed with poor earth they are bad. Flints are likewiſe very friendly to Vines, if covered with a moderate depth of earth: becauſe being cold, they retain the moiſture, and prevent the roots being parched up in very hot weather. A chalky bottom is fit for the Vine; but clay, not excepting even that which approaches to marle, or potters clay, is very unfit, as is alſo coarſe, hungry ſand.

It may be eſtabliſhed as a general rule, to plant vineyards in a cold country ſo as to face the ſouth, and in a warm climate ſo as to face the eaſt, unleſs they are ſubject to ſtorms from that quarter, in which caſe it is better that they face the north; and in exceeding hot countries, ſuch for example as Egypt, it will be beſt to expoſe them to the north.

Mr. Miller ſays, that the beſt ſoil for a vineyard in England, is that whoſe ſurface is a rich ſandy loam, and not above a foot and a half, or two feet deep, lying upon gravel or chalk: either of which bottoms is equally good for Vines. If the ſoil is deep, or the bottom either a clay or ſtrong loam, it is by no means proper for this purpoſe: for though the Vines may ſhoot vigorouſly, and produce a great quantity of grapes, yet we have not ſun to ripen them ſufficiently. If the ſoil is too deep, the roots of the Vine will run to too great a depth to receive the influences of the ſun and air; whence the juices of their fruit will be crude.

According to him, our vineyards ſhould be planted on the north-ſide of a river, upon an elevation inclined to the ſouth, with a very gradual deſcent, that the ſuperfluous moiſture may be drained off; yet if the ground ſlopes too much, it is by no means proper for this purpoſe. Hills to the north, as they ſhelter the vineyard from cold, and reflect the heat, will be of great advantage; the country round about ſhould be open and hilly, to preſerve the air dry. The vineyard ſhould be open to the eaſt, that it may enjoy the morning ſun, to dry up the ſuperfluous moiſture.

Dr. Beal in No. CXVI, of the Philoſophical Tranſactions, after having mentioned ſome inſtances of the warmth ariſing from ſtones under ground, eſpecially lime-ſtones, and ſome kinds of pebbles, is of opinion that many of our hills and rocks might be greatly improved: for it would be no hard taſk, ſays he, to ſhovel down the ſhallow and moſſy turf from the ſteepeſt declivities into places, where it may have ſome receptacle or ſtay; and there to impregnate it, with the ſpade and compoſt for garden or vineyard.

The ground muſt firſt of all be cleared of the roots of trees or ſhrubs, or whatever elſe can be a hindrance to the diggers, or might afterwards preſs down the trenched earth by its weight, or by the treading of thoſe employed in carrying it off. It is of great importance that the earth be kept extremely looſe, even, if poſſible, without a foot touching it, in order that the mould being all equally ſtirred, may eaſily give way to the young tender roots, wherever they extend themſelves, and inſtead of obſtructing them by its hardneſs, receive them into its nouriſhing boſom.

A plain or valley muſt be trenched two feet and a half deep, and a riſing ground three. A ſteeper hill muſt be trenched four feet deep: for when the mould is turned down from a higher place, it can hardly be thrown up again to a ſufficient depth, unleſs the trenches are made deeper. Beſides, I never approve, ſays Columella, of planting a Vine leſs than two feet deep, even in a valley; for it is better not to plant it at all, than to leave its roots too near the ſurface ſuſpended from the nouriſhing moiſture, which lies low, except where ſprings riſe near the ſurface; and there the ground ſhould not be trenched above a foot and a half deep.

The trenches muſt be made equally deep all the way to the bottom, the ſides being perpendicular, and the ground marked out by a line, which muſt be carried forward as the work proceeds, always at equal diſtances, till the whole ground is equally trenched. Where the bottom is of a binding nature, it is of great advantage to lay in the bottom of the trenches, ſmall ſtones, or other rubbiſh, to carry off the water, which otherwiſe, ſtagnating there, would chill the tender roots. In order to do this the more effectually, the bottom of the trenches are made ſomewhat convex towards the middle, the better to convey the water to drains cut at the extremities of the vineyard.

If neceſſity forces to replant an old vineyard, all remains of the old Vines muſt be extirpated. The ground ought then to be dunged with old dung, if it can be had, if not with new, and trenched moſt carefully, picking out every remaining root, which ſhould be collected and burnt. The trenched earth ſhould then be covered with old dung, which does not breed weeds, or with freſh earth brought from among thickets. Columella adviſes particularly, to have a careful overſeer to inſpect the workmen, and to be watchful that they do not make baulks.

Mr. Miller, inſtead of trenching the ground as the ancients did, propoſes giving it a ſummer fallow, plowing it as deep as the ſoil will admit of, and clearing it of roots, weeds, or whatever elſe can obſtruct the growth of the plants.

Columella adviſes great care to be taken in the choice of the Vine from which the cuttings are taken, and is therefore againſt purchaſing ſtrange plants at a venture, which may come from a ſoil and climate different from that they are intended for, and may not be of the ſort of Vine which is deſired. A Vine cannot be ſaid to be fruitful, becauſe it bears many grapes; for this may ariſe from the largeneſs of the trunk, and the great number of bearing ſhoots, which may have but a ſingle bunch on each. If ſeveral bunches of grapes are ſeen to hang from each ſhoot: if from each bud left the former year, ſhoots with fruit ſpring forth; if the ſhoots which ſpring out of the trunk of the Vine have ſome bunches; and if even the ſecondary ſhoots, or thoſe which grow out of the preſent year's ſhoots, bear grapes; that Vine may undoubtedly be eſteemed fruitful, and fit to afford cuttings. Whoever has this much at heart, will mark the Vines which have been the moſt fruitful, and have yielded the ripeſt and ſoundeſt grapes, with ochre and vinegar, that it may not be waſhed off by the rain. Nor is this to be done for one year only; but the Vines ought to be examined for three or more vintages, to know whether they preſerve the ſame degree of fruitfulneſs: for then it will be certain, that the fruitfulneſs muſt be owing to the good quality of the Vine, and not to a favourable ſeaſon. Whatever grapes come to their full maturity without being rotted or damaged, for ſeveral ſeaſons running, will yield more, and higher flavoured wine, than any others.

It is not enough that the ſtock from which the cuttings are taken be fruitful, but they muſt alſo be taken from thoſe parts of it which promiſe the greateſt fruitfulneſs. Thoſe which grow from the ſtem or old wood of the Vine, ſeldom bear fruit, or produce fruitful Vines. Thoſe which grow from the ſummit of the Vine are reckoned too luxuriant to plant; and though the number of cluſters on them may promiſe fruitfulneſs, yet they ſhould not be relied on; but rather thoſe which grow out of the middle of the Vine, of which the wood is firmer than that of the former. This Columella calls the genital part of the Vine; and ſays, that, having followed reaſon as his guide, and alſo a long experience, he chooſes from that fruitful part of the Vine, ſhoots which, bearing plenty of fruit already, promiſe fecundity for the time to come. He is not contented with ſingle cluſters, but chiefly approves of thoſe which have the moſt numerous offspring; and adds, that the neglect of theſe rules has rendered many vineyards leſs fruitful, indeed ſome quite barren, when the cuttings have been very improperly choſen.

Some are of opinion, that the whole ſhoot, as it is taken from the ſtem, is fit for planting; and for that end, they cut it into pieces of five or ſix eyes, each of which they plant. Others, with more reaſon, think that no part of the ſhoot is fit for being formed into a cutting, but only that part of it which is next to the wood of the former year: for every bearing ſhoot abounds in fruit below the fifth or ſixth eye. The reſt either bears no fruit, or produces only ſlender twigs. The ancients, ſays Columella, always preſerved ſome of the old wood to the cuttings: but experience has ſhewn that this is wrong; for whatever is left of the old wood ſoon roots, when it is moiſtened and covered with earth, and kills the tender roots next to it; and when this happens, the whole Vine ſhrivels, or is burnt up. Whatever remains of the old wood ſhould therefore be cut off, where the ſhoot grows to it, that the ſhoot may be planted with its own ſmall head. Mr. Miller differs here in opinion from Columella; for he directs, that the ſhoots ſhould be cut from the old Vine, juſt below the place where they were produced, taking a knot, or piece of the two years old wood to each, which, ſays he, ſhould be pruned ſmooth.

Were cuttings, thus choſen, taken from the Vines every time they are pruned, for ſeveral vintages, and carefully planted, vineyards might be raiſed, which would yield plenty of the moſt generous wines: nor need we grudge this delay; for when once we are aſſured of the fruitfulneſs of a Vine, it may be multiplied by engrafting. This, ſays Columella, you, Publius Silvinus, can witneſs: for, from one early Vine on your eſtate, I engrafted the ſtocks of two acres of vineyard in two years. How much therefore, may the Vine be multiplied from theſe two acres, ſeeing that theſe are the offspring of only one?

There are two ways of planting vineyards; viz. either with cuttings, or with Vines which have already taken root. Theſe laſt are called quickſets. In the provinces, ſays Columella, they plant cuttings, for they will not be at the trouble of having nurſeries. The expert huſbandmen in Italy approve of this practice, becauſe the quickſets are attended with ſeveral advantages. They are leſs apt to die; and by reaſon of the greater firmneſs of their wood, they ſuſtain better the extremities of heat and cold, and other intemperatures of the weather: and the tranſplanting of them quickens their producing grapes. Cuttings may do in a looſe yielding mould; but a ſtrong heavy ſoil muſt have rooted Vines, or quickſets.

Mr. Miller prefers good cuttings to rooted Vines, for planting a vineyard; becauſe the roots of Vines do not grow ſtrong and woody as moſt ſorts of trees do, but are long, ſlender, and pliable; and therefore, after they have been taken up, they ſeldom ſtrike out any fibres from the weak roots: but theſe generally ſhrivel and die, and thereby rather retard, than help, the plants in their growth, by preventing the new fibres from puſhing out.

This difference of opinion between Columella and Mr. Miller may be accounted for, from the different depths at which they direct the Vines to be planted: for were cuttings to be planted two feet and an half deep, no roots would ſhoot out from their loweſt part; and if the rooted Vines were planted ſo ſuperficially in Italy as Mr. Miller adviſes, they would be dried up by the ſun.

Columella directs that the nurſery be made, neither in a poor hungry ſoil, nor in an ouſy wet one; yet where there is moiſture enough; and in a middling rather than a rich ſoil; becauſe, though cuttings take root ſoon, and make ſtrong ſhoots in a rich ſoil; yet, when tranſplanted, they ſhrivel, and ſeldom recover. It is therefore the huſbandman's intereſt, rather to tranſplant from a middling ſoil to a rich one, than from a rich to a poorer. From a poor ſoil to a rich ſoil, they will thrive apace. It is not adviſable to make the nurſery in very poor land, becauſe many of the cuttings will then die, and the others will arrive but ſlowly at a ſtate to bear being tranſplanted.

The nurſery ſhould be trenched to the depth of two feet and an half, and being formed into beds three feet wide, the cuttings are planted in them at about a foot diſtance from one another, every way. This may be done either in the ſpring or in autumn. The ſpring is beſt if the climate be cold, or ſubject to much rain; and the autumn, if the climate be warm, and the ſoil dry, or ſituated on the ſide of a hill.

The length of the cuttings ſhould be regulated by the diſtance between their eyes: for when theſe are near one another, the cutting may be ſhorter, and when they are more diſtant, it ſhould be longer. This length ſhould not exceed a foot, nor ſhould it be leſs than three fourths of a foot, leſt, being planted on the ſurface of the earth, the cutting ſhould periſh with drought in the ſummer; and, on the other hand, becauſe when a cutting planted too deep has taken root, it cannot be taken up without ſome difficulty. If the cuttings are planted on the ſide of a hill, their length may be about fifteen inches on ouſy ground, they need not have above three eyes, which may reduce them to nine inches, but certainly to more than ſix. In theſe three eyes are not included the numerous eyes which uſually are on the cutting, near the part where it is taken from the ſtem: beſides thoſe numerous eyes, there ſhould be three others, with joints. The cuttings ſhould be planted ſo deep, as that the uppermoſt eye may be level with the ſurface of the ground; becauſe all the ſap will then be employed in one ſingle ſhoot, which will conſequently be ſo much the ſtronger. They ſhould be planted as ſoon as poſſible after they are cut off the Vine; and in doing this care ſhould be taken to avoid a ſtrong drying wind, or a ſcorching ſun. It is therefore beſt to chooſe a calm day, or at leaſt a day in which there is but little wind. The ſun may be kept off by ſhades, or any covering. The nurſery ſhould afterwards be kept clear of weeds, and be frequently dug. Only one ſhoot ſhould be reared, and that ſhould be faſtened to a ſtick or ſlender pole, to bear it off the earth. The reſt ſhould be carefully rubbed off; and this ſhoot ſhould be pruned down to two eyes in the autumn. The ſtrongeſt ſhoot from theſe eyes ſhould be reared the next ſummer; and with this management the cuttings will be fit to tranſplant at the end of thirty or thirty-ſix months.

Vines are likewiſe propagated by layers. For this purpoſe, a trench is dug four feet every way, that the layer may not be hurt by other roots. A ſhoot of the laſt year is then laid down in it, in ſuch manner as to make its end riſe at the farther part of the trench. Four eyes are left on that part of the layer which goes to the bottom of the trench, and they are to put out roots. All the eyes between them and the ſtem ſhould be rubbed off, to prevent the growth of uſeleſs ſhoots. Two, or at moſt three eyes are left on the farther end, which riſes out of the earth, and all the reſt, between them and thoſe at the bottom of the trench, are rubbed off. The layer thus prepared ſoon takes deep root, and in the third year, it may be cut off from the mother Vine. When the ſhoot is not long enough to riſe again out of the earth, Columella thought of the following method: The end of the ſhoot is brought to the bottom of the trench, and the four lower eyes, left for the roots to ſhoot from, are covered with earth, as before: but inſtead of the eyes at the extremity, as in the former way, the two eyes next the ſurface of the earth, of that part which come from the ſtem, are left to make ſhoots, which they readily do, and in the third year, the layer may be cut from the mother Vine, as in the other caſe. In order to encourage the roots to ſtrike out, they need not be covered with the whole depth of earth the firſt year, unleſs it ſhould become neceſſary before the winter, to keep the roots from being chilled by water which might gather in the trench.

The ground being thoroughly prepared, by trenching, harrowing, and clearing it of every thing that can be hurtful to the Vine, it is marked out, in order to be planted. The Romans planted their Vines five feet aſunder in a poor ſoil, ſix feet aſunder in a middling ſoil, and at the diſtance of ſeven feet from each other in a rich ſoil. Sometimes too they left a ſpace of ten feet between them, that there might be ſufficient room for the ſtrong ſhoots to extend themſelves.

They generally planted their vineyards in a quincunx form, for which they marked out the ground by ſtretching acroſs it a line trimmed with bits of red cloth, or of ſome other conſpicuous colour, at ſuch diſtances from each other as it was intended to leave between the rows. A piece of reed was ſtuck into the earth at each ſpot indicated by the cloth, and this was repeated till the whole field was marked out in equal diſtances. The planter followed, and dug a hole at each alternate reed, two feet and an half deep in level ground, two feet and three quarters if it lay ſloping, and three feet deep where the declivity was conſiderable. He then removed the quickſets from the nurſery, taking them up with great care, and tranſplanted them the very ſame minute, if that was poſſible. All their ſhoots were previouſly pruned off, except one, which was the ſoundeſt and firmeſt, and of that only two eyes were left above ground. If any of the roots were hurt in taking them up, though all poſſible care was uſed not to injure them, they were cut off, very ſmooth. If two plants were ſet in the ſame hole, a few ſtones, of about five pounds weight, were laid between them in the bottom of the hole, to prevent their roots from interweaving together. They were likewiſe of opinion, that theſe ſtones ſaved the roots from being chilled in the winter, or ſcorched by the heat of the dog-days in the ſummer. Mago adviſed to lay the huſks and ſtones of grapes mixed with dung, in the holes, under the roots of the Vines, as a means of ſtrengthening them, and of haſtening the production of young roots. During the chilling wet of the winter, they gave a warmth; and in the ſummer, they afforded a nouriſhing moiſture. Columella diſapproved greatly of putting two Vines in the ſame hole, becauſe their roots conſtantly mingled together, and formed a kind of net-work, which retained too much moiſture in the winter, and, by robbing each other of nouriſhment, proved prejudicial to both. If the ſoil of the vineyard was poor, Mago directed that the holes ſhould be filled up with rich earth brought from elſewhere. The ground ſhould be a little moiſt when the Vines are planted; but it had better be dry, than mirey wet.

Mr. Miller orders that the ground, which he before directed to be fallowed, be again well plowed in March; and that after having laid its ſurface even, the rows ſhould be marked out, from ſouth-eaſt to north-weſt, at the diſtance of ten feet from each other. He then croſſes theſe rows at the diſtance of five or ſix feet, and thereby marks the ſpot where each plant is to be ſet. The rows will conſequently be, in this caſe, ten feet aſunder, and the diſtance between the Vines in each row will be five or ſix feet; nearer than which they ought never to be planted. If they are ſet in ſquares ſo near together as ſix feet, there cannot be room for a ſufficient current of air to paſs between them when their branches are extended on one ſide; and for want of that the damps in autumn will be detained among the Vines, to the great prejudice of their fruit. In places abroad, continues he, where they regard the quality of their wine more than the quantity, they never plant their vines at leſs than ten feet, row from row, and ſome allow twelve: and he confirms the juſtneſs of this rule by what happens to other fruits, which are never ſo well coloured, ſo early ripe, or ſo well flavoured, when in cloſe plantations, as when they are produced on trees where the air can circulate freely about them, and the rays of the ſun have free acceſs to the branches, whereby the juices are better prepared.

Preferring cuttings to layers, as well as to rooted Vines, he directs, that the cuttings be taken from the Vine in the autumn, and that their ends, being made ſmooth, they be laid in the ground, about two inches deep, the reſt of the cutting being left at full length; only obſerving to cover them with dry litter, or peas haulm, in dry froſty weather. In moiſt weather, the covering ſhould be taken off, leſt it heat, and make the cuttings grow, which would greatly injure them. In April, which he reckons the beſt ſeaſon for planting Vines in England, the cuttings ſhould be taken out of the ground, and their upper parts cut off, ſo as to reduce them to about fourteen inches in length, according to the diſtance of the buds or eyes. He thinks it of great ſervice to leave their tops on all the winter, becauſe the air would otherwiſe penetrate the wounded part, and greatly injure the remaining eyes. The lower ends of the cuttings ſhould be put in water, about three inches deep, ſetting them upright, for ſix or eight hours, before they are planted, in order to moiſten them and open their pores: then, at the centre of every croſs mark, before made, a hole ſhould be dug with a ſpade, about a foot deep, and one ſtrong cutting ſhould be ſet, a little ſloping, in each of theſe holes, which ſhould afterwards be filled up immediately with earth preſſed down gently to the cutting. This earth ſhould be raiſed about three inches round each cutting, ſo as juſt to cover its upper eye or bud, to prevent the wind and ſun from drying it; for only that upper bud will ſhoot when the plant is thus managed.

Mr. Miller juſtly blames his countrymen for planting their vineyards, in the few attempts that have been made of them in England, with ſuch grapes as are the ſweeteſt and beſt for eating; this being contrary to the general practice abroad, where the rough auſtere grapes, which are by no means palatable, but which are by experience found to afford a noble rich wine, are preferred. This is alſo agreeable to the conſtant practice of the makers of cyder, who obſerve, that the beſt eating apples yield but a poor juice, and that the rough ſorts afford a ſtrong vinous liquor. I believe, continues he, that it will be found true in all fruits, that where the natural heat of the ſun ripens and prepares their juices, ſo as to render them palatable; whatever degree of heat theſe juices have more, either by fermentation, or from any other cauſe, will render them weaker, and leſs ſpirituous. Of this we have many inſtances in fruits: for if we tranſplant any of our ſummer or autumn fruits, which ripen perfectly in England without the aſſiſtance of art, into a climate a few degrees warmer, theſe fruits will be meally and inſipid. So likewiſe, if we bake or ſtew any of theſe fruits, they will be good for little, becauſe they will loſe all their ſpirit and flavour by the additional heat of the fire: and on the other hand, many fruits which are not even eatable whilſt raw, are thereby much improved. Some of theſe, which have been tranſplanted into a warmer climate, have been ſo altered by the greater heat of the ſun, as to excel the very fineſt of the fruits that are ripened in this country. The grape moſt likely to ſucceed in England, is the Auvernat, or true Burgundy grape, which thrives very well in ſeveral places north of Paris.

Columella adviſes every prudent huſbandman to ſtock his vineyards with different ſorts of vines, becauſe the weather is not ſo equal in any year, but that it may be more hurtful to ſome, than to others. If, therefore, he plants but one kind of vine, and the weather happens to be prejudicial to it, he will be deprived of his whole vintage: but if he has vineyards of various ſorts, ſome of them may eſcape, and yield him fruit. He recommends particularly, that each kind of vine be planted by itſelf; becauſe otherwiſe one of the following inconveniencies will enſue; viz. either he muſt gather his late grapes with thoſe that are early ripe, which will cauſe an acidity in the wine; or if he waits till the late fruit come to maturity, the early grapes will be rotten, or deſtroyed by birds or rain: for the diſtinguiſhing of each kind cannot be truſted to the gatherer's diſcretion. The flavour of the ripe grapes is hurt by the addition of the unripe; nor will the wine made of them both, mixed together, keep till it is old. When each ſort is ſeparate, the vine dreſſer will be able to prune and manage it in the moſt proper manner.

He cautions his readers ſtrongly againſt the too prevailing opinion of thoſe who imagine, that the chief care and trouble are at an end when the vineyard is planted. He obſerves, that the vine is a tender delicate ſhrub, which can very ill bear neglect, and which, when young, often deſtroys itſelf, by being permitted to run too much to wood, or to bear too great quantities of fruit. Moſt people are ſo intent on having much fruit, that they load the vine with too many bearing branches, without having any regard to future years, or to poſterity; and then complain, that their vineyards do not anſwer their expectation, when they themſelves have deſtroyed them, either through covetouſneſs, negligence, or ignorance. When the vine has arrived at its full ſtrength and maturity, it can better bear ſome neglect. Believe Silvinus, ſays this excellent huſbandman to his friend, what I know from my own experience, that a vineyard judiciouſly planted with good vines, and well cultivated, never fails to bring its owner a moſt abundant return. This he confirms from Græcinus, by the example of Pavidius Veterenſis, who had two daughters, and a farm planted with vines. He gave the eldeſt daughter one third of his farm, on her marriage, and yet had as much fruit from the remaining two thirds, as he had before from the whole. He afterwards gave half of the remainder to the younger daughter, on her marriage, and ſtill had as good an income as at firſt. This, ſays Columella, muſt ariſe from the remaining thirds being proportionally better cultivated, than the whole had been before.

When the vineyard was perfectly well cultivated, and in a good ſoil, the Romans planted cuttings in the ſpaces between the vines, where they grew as in a nurſery. The vines and cuttings ſoon throve and gathered ſtrength, when the ground was kept in ſo looſe a ſtate by frequent digging, as to be reduced to powder, and always perfectly free from weeds, which would conſume the nouriſhing moiſture that ſhould feed the plants, whoſe roots extended eaſily in ſuch looſe mould. It was a general rule, that the diggings ſhould be repeated once a month, from the firſt of March to the firſt of October; and all weeds were carefully pulled up by hand, and carried off the ground, leſt they ſhould take root again. Mr. Miller ſays, that as the ſpace between the rows of vines is great, the ground there may be ſown or planted with any kind of eſculent plants, provided they are kept at ſuch diſtance from the vines, that theſe be not injured by them. This huſbandry, which is alſo the method in France, may be continued three or four years, till the vines come to bearing: but after that, no ſort of crop ſhould be ſet between them in the ſummer; becauſe, the clearer the ground is kept, the more heat will be reflected to the grapes. After they are gathered, a crop of coleworts, for ſpring uſe, may indeed be planted between the rows, and the ſtirring of the ground for them will be of great ſervice to the vines.

From the time that the vine firſt begins to bud, all ſuperfluous ſhoots muſt be carefully rubbed off, that the nouriſhment may be conſumed by thoſe only which are to be reared. Two ſhoots are generally ſet apart for growth; the one as a reſerve, in caſe the other ſhould fail. As ſoon as they riſe, a prop ſhould be ſet in the ground, for each of them. This prop ſhould be ſlender, becauſe the weak tendrils of the vine will then lay hold of it more eaſily than if it was thick. As the ſhoots grow up, they are tied to the props with a ſoft ſlack binding, till their tendrils have encircled them; and at leſs than four feet from the ground, ſticks are faſtened acroſs the props, that the vines may extend laterally, and thereby be the leſs expoſed to the force of winds. In nurſeries, this croſs ſtick, or rail, ſhould not be above a foot high, leſt ſtrong winds ſhould tear the young plants out of the earth. When the ſhoots are grown nearly to their full height, their tops are broken off, to make them increaſe in thickneſs and ſtrength, rather than run up in a needleſs length. The moſt thriving ſhoot, which is to be the leading wood branch, muſt be trained up ſtrait, and kept clear of ſecondary ſhoots for three feet and a half from the ground: but ſuch as grow above that height may be permitted to remain till the autumnal pruning; for if they are all rubbed off, new ſhoots will immediately ſpring out from other eyes, ſo that, perhaps, none may be left for the next year's buds. The ſhoots which are rubbed off from time to time ſhould never be ſuffered to grow ſo ſtrong, as not to be eaſily diſplaced with the finger; for the heat in ſummer hurts the vine greatly wherever it has been wounded with a knife. For this reaſon, if it ſhould be abſolutely neceſſary to uſe the knife, a piece of the ſhoot which is cut off ſhould be left prominent from the ſtem, to ſtop the effect of the heat, which, in that caſe, will not proceed farther.

About the middle of October, or before the cold came on, the Romans *ablaqueated*, as they called it, the roots of their vines; that is, they laid them bare, ſo as to expoſe to view the upper ſmall roots which the vine had put forth in the ſummer, and which ſhould be cut off with a knife; for if theſe are ſuffered to grow large, the lower ones will decay, and the vine will then be nouriſhed only by roots, which, extending themſelves along the ſurface of the earth, or but little deeper, muſt be expoſed to the inclemency of the winter's froſt, and be liable to be parched by the drought and heat of the ſummer. Whatever roots appear within a foot and an half of the ſurface muſt therefore be cut off. The beſt way is to cut them about an inch from the ſtem, and to leave that ſtump prominent; for if they are cut cloſe, either others will ſhoot out, or the water which ſtands in the hollow made round the root, being frozen, will deſtroy the ſtem to the very pith, where the ſcar is: but both theſe accidents are prevented, by cutting them off at a little diſtance from the ſtem. And now will appear a reaſon why the vines ſhould ſtand upright in the ground: it is, that if they are inclined, they muſt be liable to be wounded when they are ablaqueated; for while the digger is intent on digging, and forming a hollow round the vine, he may inadvertently wound the vines which grow obliquely, or even cut them quite through. If the winter is mild, the roots may remain uncovered till March; but if the ſeverity of the weather forbids this, the hollows ſhould be filled up by the beginning of December. Where the winters are very ſevere, ſome dung, or, if it can be eaſily come at, pigeon's dung, or urine which has been kept a long while, ſhould be laid to the roots before they are covered. The vines ſhould be thus ablaqueated every winter, for the firſt five years: and after that, as the lower roots will then have got pretty ſufficient ſtrength, it need not be repeated above once in three years.

From theſe directions of Columella, we may aſſign a reaſon why Mr. Miller does not ſpeak of ablaqueating the vine. Columella wrote for Italy, where the heat of the ſun is very powerful, and dries the ſurface of the earth to a conſiderable depth. It was therefore neceſſary, in order to ſecure moiſture for the roots, to plant and keep them deep in the earth: but as the degree of heat in England is much milder, as well as of ſhorter duration, and as the earth here is refreſhed by much more frequent ſhowers during the ſummer, Mr. Miller directs the vines to be planted much ſhallower. and finds that it is not neceſſary to ablaqueate them. He rather guards againſt their taking too deep root.

The Romans reared all their vines in one ſtem to ſome height above the ground; and therefore, as ſoon as they had finiſhed ablaqueating them, they cut off the weakeſt of the two ſhoots, which they called the ſhoot of reſerve, and pruned the remaining ſhoot to two eyes. Mr. Miller directs that both the ſhoots be cut down to two eyes, and that the earth be drawn up in a hill about each plant, which will be a great defence againſt froſt.

The wound ſhould be made obliquely, almoſt in the middle between the joints, leſt water ſhould lodge in the pith, if the ſhoot were cut horizontally: but the ſlope muſt not be toward the eye, leſt this ſhould be hurt by the trickling down of the ſap, or tears, which will ooze from the wound. Mago recommends the ſpring, as the fitteſt time for pruning the vine; becauſe, being then full of ſap, it affords an eaſy paſſage to the knife: but Columella does not approve of this, unleſs it be in countries where the winters are very ſevere: otherwiſe, he thinks the autumn the beſt ſeaſon. The early writers on huſbandry forbid touching the vine with the knife during the firſt year; and Columella, who likewiſe diſapproves of it, making experience his guide, neither ſuffered his vines to become wild, by running too much to wood; nor did he, by cutting off the young ſhoots entirely, force them to ſhoot from the ſtem, which ſeldom proves ſo fruitful as ſhoots from the young wood.

During the ſecond year's growth, the ground ſhould be kept conſtantly ſtirred, as in the preceeding year, only with this difference, that it may be done once ſeldomer. The weeds muſt be kept under, till the vines, by extending their branches, ſhade the ground, and thereby prevent their growing under them. All ſuperfluous twigs muſt be conſtantly rubbed off as before, and only one ſhoot ſhould be permitted to grow up, the props muſt be continued as in the former year. If any of the plants died in the firſt year, two ſhoots may be reared up on the ſtrongeſt of the vines next the vacant ſpace; one to form the ſtandard ſhoot, and the other to be made a layer, to ſupply the place of the dead vine. After the vintage, this ſhoot muſt be laid down, or if it be not long enough to riſe out of the earth on the other ſide of the hole, only its extremity need be put into the ground, as already directed. Next year, the layer muſt be cut half through, in the bend, that ſo it may not rob its mother too much, but be brought to be nouriſhed by its own roots. When it is two years old, it may be cut off from the mother plant, and its root muſt be carefully ablaqueated, that it may ſtrike the deeper into the earth. If the neighbouring vines cannot furniſh layers, a rooted vine muſt be brought from the nurſery; for it is too late to recruit a vineyard, when we ſhould be gathering its fruit.

For the third year's growth, the vine muſt be ſupported with ſtronger and higher props than before. Theſe ſhould be fixed, either a foot from the vine, that they may not hurt the roots, and that ſo the vine-dreſſer may dig all round the vine; or in the middle between two vines. The firſt way is the beſt, becauſe the vine and prop mutually ſupport each other. If the prop is fixed near the vine, it ſhould ſtand ſo as to ſhelter the vine, from the north. It is of great importance that the prop ſtand very firm. On each upright prop muſt be put a croſs pole, ſufficiently ſtrong to bear the weight of the fruit. This year the vine may be permitted to make two ſhoots, to cover the croſs pole on each ſide with bearing branches, unleſs the vine be yet too weak to nouriſh them. All ſuperfluous ſhoots and twigs muſt be carefully rubbed off. The ground muſt be frequently ſtirred, to keep it looſe, and deſtroy weeds. The roots muſt be laid bare in October. The places of dead plants muſt be ſupplied, as directed for the preceding year, and this muſt be a conſtant rule every year. When a vine dies after it has ſtood for ſome years, the hole or trench which is made for the layer or young plant, muſt be dug deeper and wider than it need to be after a young vine, in order that all the roots of the old one may be taken away. The trench ſhould then be partly filled with freſh earth, or a good deal of dung mixed with the former ſoil. If each ſide of the vine has produced two ſhoots, and both of them ſhew plenty of fruit; yet one muſt be taken away, that the other may thrive the better, and bring its fruit to greater perfection.

When this vintage is finiſhed, the vine may be pruned ſo as, in a fertile ſoil, where it thrives well, to leave three eyes, to produce bearing ſhoots for the next year; but four eyes ſhould ſeldom be left. The binder muſt ſeparate theſe ſhoots, and tie them to the frame, to which another croſs pole is now added, in the form of a ſtar: or theſe croſs poles may be ſupported by four props. The ſhoots ſpread in this manner become a counterpoiſe to each other. Theſe croſs frames are the more neceſſary if the vines are expoſed to ſtormy winds, or if they ſtand on ſteep declivities, where every means of propping them is wanted. In warm and dry ſituations, the frame may be extended on all ſides, in the form of an arched roof, the better to ſhade the thirſty earth: but in cold and froſty climates, the vines muſt be ſupported only on ſingle frames or eſpaliers; for then the earth is more eaſily warmed by the ſun, the fruit is more thoroughly ripened, and a freer paſſage is afforded to the air. The frames ſhould not be lower than four feet, nor higher than ſeven. Young vines ſhould be brought to this height gradually. The moiſter the ſoil and climate are, the higher ſhould be the frame; for there, the thriving ſtate of the vines admits of raiſing their branches, and their fruit being thereby raiſed higher from the earth, is the leſs liable to rot. In this ſituation, the winds blow freely through them, and dry up the dews and noxious fogs; the vines bloſſom more kindly, and yield a better wine. On the other hand, vines in a poor ſoil, on a ſteep declivity, and ſubject to ſcorching heat, require lower frames. If the vineyard is well placed, the beſt height is five feet; though there is no doubt but that the wine is the better flavoured, the higher the frames are.

If the vineyard is interſected by foot paths which divide it into a number of ſmall partitions, the ſun and wind have the freer acceſs to the vines; as hath alſo the eye of the maſter, which is of great advantage. The labour too ſeems leſs to the vine dreſſers, when it is thus portioned out in ſmall diviſions. The paths afford convenient paſſage for the grape gatherers, for thoſe who repair the frames, and for bringing in manures, or what elſe may be wanted. The owner can likewiſe diſtinguiſh the fruitfulneſs of each ſpot, and thereby be enabled to apply proper remedies. Where the rows of vines ſtand very far aſunder, too much ground is generally left uncultivated between them; one half of which is commonly uſed for alleys, or foot-paths.

The trunk of the vine ſhould be carried up ſtrait to within a foot of the top of the frame; not only to conduce to its beauty, but alſo to its fruitfulneſs and duration: for the moiſture which nouriſhes plants never has ſo free a motion through a crooked ſtem, as it has through a ſtrait one; the bendings proving ſo many lets or hindrances to the equal circulation of the ſap. The top of the vine ſhould be faſtened to the prop, ſo as to prevent its being bent, or dragged down, when it is loaded with fruit; and for greater ſecurity in this reſpect, the arms, or branches, which proceed from thence, ſhould be trained along the frame, and tied to it, ſo that only thoſe parts of the ſhoots on which the fruit grows may hang ſloping down from the edge of the frame: nor ſhould this be at right angles from the binding, becauſe that poſition would endanger their breaking. When thus ſituated, they are leſs expoſed to rain and hail, than when they are faſtened to the frame. They ſhould however be tied up before the grapes are ripe, to guard againſt their being rotted by the dew. When the vine is five years old, it will be ſufficient to leave one fruit bearing ſhoot on each of its arms, or branches: but, ſome years after, when it has attained its full ſtrength, a luxuriant vine, in a rich ſoil, may convey nouriſhment to eight fruit-bearing ſhoots; and, indeed, unleſs it be checked by a quantity of fruit, it will waſte itſelf in wood and leaves: whereas a weak vine, in a poor ſoil, will ſoon be exhauſted if it is burthened with fruit.

The branches of a vine ſhould never be ſuffered to grow bigger than the ſtock: but, to ſupply their place, ſhoots iſſuing from their ſides ſhould be trained, and as ſoon as theſe begin to bear fruit, the old hard wood ſhould be cut away. Fewer bearing ſhoots ſhould be left on the branch which extends northward, than on that which is directed toward the ſouth; becauſe this laſt requires the greateſt ſhelter from the ſcorching heat of the ſun, and therefore ſtands moſt in need of leaves. All ſuckers muſt be cut away from the root, and the place whence they ſprung ſmoothed with a knife; for then it will ſoon ſkin over. No ſhoots muſt be ſuffered to grow from the trunk, nor ſhould any knobs or warts be left on it. All dry, cracked, and ſhrivelled bark, muſt be taken off. Moſs likewiſe, which ſhackles the vine, as with a fetter, and ſoaks it with its pernicious moiſture, muſt be carefully ſcraped off: and if the trunk is any way damaged, or rendered hollow by rain or inſects, it muſt be cut away to the ſound wood. The wound ſhould then be covered with earth which has been moiſtened with lees of oil for this will defend it from inſects, ſun, and rain, and therefore make it heal the ſooner. All broad, ill-ſhaped withered ſprays, and ſuch as hang downward, commonly called danglers, muſt be cut off; and the ſtrait ſhoots muſt be preſerved. When the vine is freed from all theſe incumbrances, it will thrive the better, and yield the purer wine. The vine dreſſer ſhould be particularly attentive, that all wounds in the ſolid wood be made ſloping and round; becauſe they afford the leaſt lodgment to water, and are the ſooneſt cloſed.

Sometimes a ſtrong ſhoot ſtrikes out of the fork of two of the leading branches, and cripples one of them. In this caſe, the crippled branch muſt be cut off, and the young ſhoot reared in its ſtead: but if it be taken in time, the young ſhoot ſhould be cut off. Whatever grows out of the trunk of the vine muſt be cut away ſo ſmooth, that no water may lodge in the ſcar: but what grows on the young ſhoots of the ſame year, ſhould be cut off between the two firſt eyes; leſt by cutting it too near the main ſhoot, this alſo ſhould be hurt by the wound, and the neighbouring bud be killed.

As to the length of the fruit-bearing ſhoots, there is no general rule; for it may depend greatly on the quality of the ſoil, and the vigour of the Vines, as well as on the diſtance between the eyes; for where the joints are ſhorter, a leſs length of ſhoot may be equally loaded with fruit. The laſt year's vintage ſhould alſo be conſidered: for thoſe parts of the Vine which then bore great plenty of fruit, muſt be ſpared in the following year; and ſuch as produced but a ſmall quantity, may be loaded the more. Moſt particular care ſhould be taken, that every cutting inſtrument which touches a Vine, be ſharp and well tempered; for otherwiſe, the labour of the vine-dreſſer is greater, and the Vine is rather torn than cut; ſo that there then remains an uneven ſcar, in which the juices putrify, ſo as often to kill the Vine.

Mr. Miller agrees with Columella in keeping the Vine clear of uſeleſs ſhoots, and in the frequent ſtirring of the ground: only, as the Vines in England are not planted ſo deep as in Italy, he cautions againſt digging too deep cloſe to the Vines, leſt their roots be cut or bruiſed. He differs ſomewhat in the method of propping and pruning, which he directs to be done as follows.

At the beginning of May, in their ſecond year, when the Vines are ſhooting, two ſtakes, ſomewhat taller and ſtronger than thoſe of the preceding year, ſhould be fixed down to the ſide of each plant, and the two ſhoots ſhould be faſtened to them.

In the autumn, the Vines which have produced two ſtrong ſhoots of equal vigour, muſt be cut down to three eyes each. When they have a ſtrong ſhoot and a weak one, the ſtrong ſhoot muſt be ſhortened to three eyes, and the weak one to two: and ſuch as have but one ſtrong ſhoot, ſhould be ſhortened to two eyes.

In March of the third year, two ſtakes ſhould be placed down by the ſide of all ſuch Vines as have two ſhoots, at ſuch diſtance on each ſide of the plant, that the ſhoots, faſtened thereto, may form an angle of forty-five degrees with the ſtem: but they ſhould not by any means be bent down horizontally, as ſome injudiciouſly adviſe and practiſe: for the branches, then lying too near the earth, are generally injured by the damps which ariſe from thence, eſpecially if they have fruit, which is never ſo well taſted, nor ſo ripe, as when they are a little elevated. In May, the ſtrong ſhoots ſhould be faſtened to the ſtakes.

If the two ſhoots of the former year have produced two ſtrong branches, the uppermoſt of theſe ſhoots upon each branch ſhould be ſhortened down to three good eyes, not including the lower eye, which ſeldom produces any thing more than a weak dangling ſhoot; and the lower ſhoot ſhould be ſhortened to two good eyes; theſe being deſigned to yield vigorous ſhoots for the next year, as the former are to bear fruit. Where the Vines are weak, and have not produced more than two or three ſhoots in the ſummer, but one of theſe ſhould be left with three eyes, for bearing; the other muſt be ſhortened down to two, or if it be weak, to one good eye, in order to obtain ſtrong ſhoots the following ſummer: for nothing is more injurious to young Vines, than leaving too much wood upon them, or over-bearing them.

In March of the fourth year, all ſmall horizontal roots, which may have been produced near the ſurface of the ground, ſhould be cut off cloſe to the trunk. A ſtake ſhould be placed about ſixteen inches from the root, on each ſide of the Vine, and the bearing branches ſhould be faſtened thereto. Then another, and taller, ſtake ſhould be thruſt down near the foot of the Vine, and to this ſhould be tied the two ſhoots which were pruned down to two eyes. In May, the ſhoots which ſhew fruit muſt be faſtened to the ſtakes, with baſs, to prevent their being broken, until they are extended to three joints beyond the fruit; when they ſhould be ſtopped, by nipping off the end: but the ſhoots, which are deſigned for bearing the next year, ſhould be trained upright to the middle ſtake; by which method, neither of them ſhading the other, each will enjoy the benefit of the ſun and air. The ſhoots ſhould be conſtantly kept in their right poſition, to prevent the inverting of their leaves; for when that happens, it greatly retards the growth of the fruit.

Mr. Miller very juſtly cenſures the abſurd practice of thoſe who pull off from their Vines the leaves which grow near the fruit, in order to let in the rays of the ſun, to ripen it; not conſidering how much they thereby expoſe their fruit to the cold dews which fall plentifully in autumn, and which, being imbibed by the fruit, greatly retard it: beſides, no fruit will ripen ſo well when it is entirely expoſed to the ſun, as when it is moderately ſcreened with leaves. By pulling off the leaves, which are abſolutely neceſſary to prepare the juices before they enter the fruit, and of which juices the groſs parts are perſpired by them; the fruit muſt either be deprived of nouriſhment, or elſe, ſome of the groſs particles will enter with the more refined parts of the juices, and thereby render the fruit worſe than it would be if the leaves were left upon the branches.

This naturally leads me to another opinion, which I have long been inclined to entertain: it is, that not only the ſtripping the Vine of its leaves, but alſo the ſummer pruning, which is intended to haſten the ripening, and increaſe the goodneſs of the grapes, has the contrary effect. For in the ſpring, and while plants are in a growing ſtate, their juices are of a watery acid nature, abounding in what the chemiſts call their native ſalt. As the ſummer advances, or as, reſpectively in each, their ſeed, or fruit, begins to ripen, their juices loſe that watery acid ſtate, and become gradually milder: and when the ſeed, or fruit, is come to full maturity, the juices of perennial plants become of an oily mucilaginous quality. This change in the nature of the juices of plants is gradual, and perfect, in proportion to the flouriſhing ſtate of the plant. Now, if a conſiderable length is cut off from the young ſhoots of the Vine, while it is yet in its luxuriant growing ſtate, and the motion of the ſap is ſtill briſk in it; a check muſt be given to nature in her juices. This is confirmed by the given effects of numbers of facts and experiments. As young ſhoots ſpring out again after this ſummer pruning, the juices are probably again brought to a thin watery ſtate, in order to carry on that newly excited vegetation; the change of the juices into their milder and thicker ſtate is thereby retarded, and conſequently the richneſs and mellow ripeneſs of the fruit is impeded. It would therefore ſeem more adviſable to defer ſhortening the ſhoots, till they have nearly arrived at their full length, and the grapes are beginning to ripen. The perfecting of the fruit requires ſo ſtrong an exertion of all the powers of nature, that few, if any, ſhoots will then ſpring out; by which means the buds for the next year will be preſerved ſtrong, and the grapes will arrive at a more perfect maturity.

Mr. Miller directs, that the vineyard, being now arrived at a bearing ſtate, ſhould be treated after the following manner. Too many branches ſhould never be left upon a root, nor ſhould thoſe be too long: for although a management contrary to this may be productive of greater quantity of fruit, yet that fruit will not be ſo well nouriſhed, nor will its juice be ſo good, as when it is but moderately plentiful: neither will the roots of the plants be ſo much weakened in this laſt caſe, as they muſt be in the former. The ground ſhould be conſtantly kept clear of weeds; and no ſort of plant ſhould be ſuffered to grow on it, excepting that which it is intended to cultivate. It ſhould be manured every third year, according to the nature of the ſoil. If the land is ſtiff, and inclinable to bind on the ſurface, ſea-ſand, or ſea-coal aſhes, are very good manure: but if it is looſe and dry, a little lime mixed with dung will do it the moſt ſervice. After each ſpring digging, the ſtakes are fixed as already mentioned, and the ſame care and management of the vines, as was before directed, muſt be continued. Mr. Arnoux ſays, that, in Burgundy, they bind the branches of the vine in an horizontal poſition, at the height of half a foot from the earth, to props three or four feet high, ſtuck into the ground, without any order, at the diſtance of about a foot aſunder. They tie the ſhoots to theſe props as they extend in length, and find in this method the advantage that one branch is not ſhaded by another, but for as little a time as is poſſible.

Columella directs, that the props and frames be carefully examined after every pruning, and that whatever is amiſs in them be repaired. Broad and flat props are preferable to round ones, and oak is the beſt wood they can be made of. Next to them, are round props of juniper, laurel, foreſt pine, and elder. Such as are rotten muſt be taken away, and new ones put in their ſtead. The bindings ſhould be new every year. The ligature which faſtens the ſtem to the prop ſhould not be always in the ſame place, leſt it ſhould occaſion a wound. The four branches ſhould be tied gently to the croſs poles, ſo as not to twiſt or bend them much. The ſhoots ſhould be faſtened ſo as that, when they grow beyond the frame, they may go ſhelving from it, and not hang by their binding, which would be apt to break them, eſpecially when loaded with fruit. When two branches are ſo near together as to go to the ſame ſide of the frame, another pole ſhould be placed between the croſs ones, for one of thoſe branches to be faſtened to.

Thoſe who are curious in gardening know what great things Dr. Agricola boaſts of from the uſe of his mummies, in rearing the tendereſt plants, as well as in raiſing foreſt trees from cuttings. The lees of oil, as Columella directs, mixed with fine earth, to give it conſiſtence, may probably anſwer the ſame purpoſes. Where lees of oil cannot be had, ſome other bitter vegetable ſubſtance might be contrived, which, being free from the acrid oil in all turpentines (as in Agricola's mummies) might prove very friendly to plants, and be particularly uſeful in preventing their wounds from bleeding, and in preſerving them from being ſcorched by the ſun, or hurt by inſects. It is neceſſary that this ſubſtance be bitter, that it may hinder the inſects from preying on the tender juicy fibres, for inſtance, of the vine, wherever a wound is made. Even loam, by itſelf, is found to be ſerviceable for theſe purpoſes; and ſo is either goat's, ſheep's, or cow's dung, well mixed with a due proportion of earth. The vine-dreſſer ſhould therefore conſtantly have ſome ſuch ſubſtance ready to apply to every wound he makes in the vine. Perhaps too, it may prove uſeful to the cuttings, when theſe are planted, by retaining the juices, till they are employed in their office of vegetation, and thereby help to ſave them from being parched up by drought, as well as to render them leſs liable to be ſoaked in a wet ſoil, or by a rainy ſeaſon.

Columella gives very particular directions for raiſing groves, in which trees grow till they are ſtrong enough to become props for vines; as alſo for making nurſeries of trees proper for ſupporting vines, or being married to them, as the antients termed it. The plenty of wood in this kingdom, and the ſtill greater abundance of it in America, renders that taſk unneceſſary in this work.

He recommends the poplar as the moſt friendly tree to the vine, next the elm, and then the aſh. As the poplar has fewer leaves, and theſe are not reliſhed by cattle (which is an object of great importance in Italy, where graſs is ſcarce) many reject it. The aſh, whoſe leaves are agreeable to ſheep and goats, is chiefly planted in rugged and mountainous places, where the elm does not thrive well. The elm is the moſt frequently planted, becauſe it agrees exceedingly with the vine, and cattle are very fond of its cuttings.

When the trees are to be planted out, pits ſhould be dug for them ſome weeks before they are removed. Theſe pits ſhould be made in a direction which may not interfere with the vine: as eaſt and weſt, where it is neceſſary to plant the vine on the ſouth ſide of the tree, becauſe of the cold; or ſouth and north, where the vine is to be ſet on the eaſt or weſt-ſide of the tree. If the trees are planted in a field, where corn is to grow, and in a rich ſoil, the diſtance between them ſhould be about forty feet: but in a poor ſoil, where nothing elſe is planted, twenty feet will be ſufficient.

Whatever tree is planted for the purpoſe of ſupporting the vine, it ſhould not be pruned for the firſt two years. If it be an elm, and grows but ſlowly, all its branches ſhould be cut off excepting one, which ſhould be the faireſt and ſtraiteſt that can be ſingled out. If it does not grow ſo upright as one would wiſh, ſome inches of the ſtump of another branch may be left near it, and by tying it thereto it may be trained up ſtrait, in order to form the trunk of the tree. In the next year, the ſtump muſt be cut off and ſmoothed. If there is no branch fit for this purpoſe, the whole top muſt be cut off, at the height of nine feet, that cattle may not reach the young ſhoots. It ſhould be cut with one ſtroke, if poſſible; otherwiſe it ſhould be ſawed off, afterwards ſmoothed, and then covered with loam mixed with ſtraw, to preſerve the wound from the ſun and rain. In two or three years, when a new head is grown, the uſeleſs branches ſhould be cut off, and the reſt formed into the following order. In a ſtrong ſoil, an elm ſhould not have a branch within eight feet of the ground; nor within ſeven in a poor ſoil. At theſe heights, three branches ſhould be left as equally diſtant as can be, in the circumference of the tree, to form what is called the firſt ſtory. At three feet above them, three other branches are left, but not in the ſame line as the lower ones, if there be a poſſibility of avoiding it, becauſe theſe would rub againſt the tender buds of the ſhoots of the vine hanging from the higher branches, and ſhake off the grapes. The tree is to be formed into ſtories, in this manner, up to the top. The branches are ſuffered to extend more or leſs wide as the ſoil is rich or poor, in order that the ſhoots of the vine may be ſpread accordingly. Care ſhould be taken in lopping the elm, that the body of the tree be as little hurt as poſſible, and that the bark be not torn off, for this would do it great prejudice. The earth ſhould be kept looſe around the trees; and all ſuckers, or whatever elſe might ſhade the vine, ſhould be cut away. When the tree grows old, and, either by a wound or otherwiſe, water lodges in it, a hole ſhould be bored, or a channel cut, to give an outlet to the wet.

The vines ſhould be planted before the trees are very ſtrong. A young elm may bear a young vine, but it would be killed by an old one; wherefore their ages and ſtrength ſhould be proportioned. A trench muſt be dug for the vine, two feet and a half wide, three feet deep, five or ſix feet in length, and at leaſt a foot and a half diſtant from the tree; for if it be planted nearer, the roots of the tree will not permit thoſe of the vine to ſtrike deep enough, and as the tree grows, it will oppreſs the vine. For a vine that is to be planted in the ſpring, the trench ſhould be dug in the preceding autumn; that the earth may be mellowed by the winter's rain and froſt: and if it is to be ſet in the autumn, the holes ſhould be laid open ſome weeks before, that the ſoil may have the benefit of the ſun and rain. Though Columella had before found fault with putting two plants in the ſame hole; he here adviſes to put two in each trench, a foot aſunder, that they may the ſooner clothe the tree. A northerly wind, and cold dews, ſhould be avoided at the time of ſetting them. If the climate is temperate, inſtead of having two plants in the ſame trench, a trench may be made on the eaſt and another on the weſt-ſide of the tree, and a vine may be planted in each; by which means their roots will have ſufficient room to extend in. Though Mr. Miller, as I obſerved before, thinks it of little conſequence whether a tree that is tranſplanted be ſet to the ſame aſpect as it had in the nurſery: Columella recommends, as a circumſtance which is attended with great advantage, particularly to vines (but he extends it to all trees which are removed from the place of their firſt growth) to mark them before they are taken up, in order that the ſame ſide may ſtill be turned to the ſun. In dry and warm ſituations, where neither a ſevere winter, nor a very wet one, need be feared, the autumn is the beſt ſeaſon for planting both vines and trees; laying under their roots the depth of half a foot of the richeſt and fineſt mould, and covering them with well dunged earth. The vine ſhould be planted in the trench with its ſtem inclining to the tree, againſt which it is to riſe up ſtrait; and it muſt alſo be defended from cattle. In hot countries, the vine ſhould be planted on the north-ſide of the tree; in cold ones, on the ſouth; and in temperate climates, either on the eaſt or the weſt, that it may not be all the day in either the ſun or the ſhade.

In the next autumn, the vines are pruned, as already directed, for frames. When they have reached the firſt ſtory, ſhoots ſhould be diſtributed to each branch, leaving a leading ſhoot, which is to go up to the top of the tree: and thus each ſtory is gradually covered. It is a rule with many, to load chiefly the lower part of the tree, becauſe there the vine bears moſt grapes, and they are moſt eaſily gathered: but thoſe who regard the quality more than the quantity of their wine, clothe the upper branches moſt, and garniſh the reſt with bearing ſhoots in proportion to their ſtrength. The future pruning conſiſts in cutting off the ſhoots which bore fruit for the laſt vintage, and in rearing others in their place If the vine is very thriving, the bearing ſhoots may be permitted to hang down ſloping from the branch, to which their extremities ſhould then be brought back, and tied: or if the vine is very luxuriant, they may be carried to the next tree. Though theſe ſhoots yield a great deal of fruit, they muſt be cut off at the next pruning, becauſe, otherwiſe, they would weaken the vine too much. No ſhoots ſhould be ſuffered to grow out of the firm wood, unleſs they are wanted in order to marry them to a widowed branch.

The young vine is tied to the tree at about four feet from the ground, and with this binding its growth may be checked, if it be too luxuriant, or if the tree has been deprived of its branches. It ſhould be tied again at about half way up, and a third time at the top. The vines ſhould be looſened every year, becauſe they are then moſt eaſily pruned and cleared of all imperfections; and they are refreſhed by being bound in new places. They are alſo then in leſs danger of being galled by the binding. The bearing ſhoots ſhould be ſo laid on each branch, as that, being tied above the third eye, they may hang ſlanting down: but they muſt not be tied tight, leſt the binding ſhould cut them. At the ſame time that ſome ſhoots are thus laid for bearing fruit, others ſhould be trained up to the body of the tree, to produce wood for the next year.

If the vine does not clothe the tree ſufficiently, a ſhoot may be turned down to the ground at the autumn pruning, and made a layer, from which as many young plants may be raiſed, as, being led up to the tree, will cover it enough. When the trees decay, young ones ſhould be immediately planted in their ſtead; and when the vines begin to be worn out, they ſhould be renewed by layers from neighbouring vines, rather than by quickſets.

To the foregoing directions for the cultivation of tall vines in Italy, and the ſame are equally applicable to all other warm countries, Columella adds the following account (which we ſhall likewiſe abridge from him) of the manner in which vineyards of lower growth were managed in the provinces of the Roman empire.

The huſbandman there never trenched all the ground; but only opened a deep furrow, in which the vines were ſet. This might be ſufficient where the ſoil was naturally looſe. In ſome of theſe vineyards, the plants ſtood without any props; in others, they were faſtened to rails; ſometimes they were tied to dwarf trees; and ſometimes they were ſuffered to run upon the ground. In the firſt of theſe caſes, a ſingle ſtem was reared up, free from ſide-ſhoots, till it had acquired ſtrength enough to ſupport the fruit bearing branches, which, when they were of a ſufficient length, were bent down in a circular form, and tied to the lower part of the ſtem. In the ſecond caſe, the fruit bearing ſhoots were trained to rails, or eſpaliers, as they grew. In both theſe ways, the planting, pruning, and other culture, differed ſo little from the general directions already given, that it would be needleſs to particulariſe them here; eſpecially as I ſhall ſoon have occaſion to ſpeak pretty fully of the management of low and of middle ſized vines, as now practiſed by the French, whoſe beſt vineyards conſiſt of none elſe. As to letting them trail upon the ground, Columella juſtly thinks it ſo bad a method, that no excuſe can poſſibly be offered for it, unleſs the country be indeed uncommonly ſubject to very high winds:—and then, perhaps, a doubt may ariſe, whether ſuch a place be at all proper for the vine.

In Gaul, the trees for ſupporting the vines, beſides being kept very low, were, of choice, ſuch as had the feweſt leaves. The poplar was therefore much eſteemed for this purpoſe; for which the hornbeam, the mountain aſh, and ſometimes the willow, were alſo reared. The willow was planted only in moiſt places, where other trees could not thrive well; becauſe it was thought to hurt the taſte of the wine. The elm was likewiſe ſo managed, whilſt young, as to be turned to a dwarf; as it may eaſily be. In dry and hilly ſituations, the ſtories of theſe trees were about eight feet high; and in vallies, or moiſt places, about twelve feet. Theſe trees were generally divided into three branches, out of which ſeveral leſſer boughs aroſe; and all the ſmall twigs were uſually cut off, at the time when the vine was pruned, to prevent their ſhading the fruit too much. If the dwarf trees were planted where corn grew, they were ſet twenty feet aſunder in rows forty feet diſtant from each other: but when they were planted where there was no corn, their uſual diſtance was twenty feet every way. Here the young ſhoots of the vines were more frequently carried from one tree to another, than when the trees grew high. If the trees were too far aſunder to afford a ſupport to the ſhoots, poles were extended between them, and theſe were up-held by props, as ſoon as the weight of the grapes began to be too heavy for them. In all other reſpects, the culture of the vine was the ſame as in Italy.

In clearing the vines of their ſuperfluous ſhoots and leaves, Columella obſerves that, in the provinces, in places which were ſhaded, or where the ſun had not much force, or which were moiſt and cold, the vine dreſſers uſed to ſtrip the vines of many of their leaves, that the fruit might be the better ripened by the warmth of the ſun, and not be rotted by too much moiſture: but in places that were dry, warm, and expoſed to the heat of the ſun, the grapes were left covered with their leaves and twigs; and if the vine had but few ſhoots and leaves, the fruit was ſheltered by ſome other covering: “Thus,” ſays he (in the paſſage before quoted),

“ my uncle, Marcus Columella, a man ſkilled in all the liberal arts, and the moſt diligent farmer in Bœtica, covered his vines with mats in the beginning of the dog days; becauſe, during that ſeaſon, the country was ſubject to a ſcorching eaſterly wind, which, like a fiery vapour, burnt up the grapes, if they were uncovered.”

The authors of the Maiſon Ruſtique draw their precepts with regard to the method of cultivating vineyards in France, from the actual and moſt approved practice of Burgundy, Champagne, and Orleans, the wines of which countries are deſervedly held in the higheſt eſtimation.

Their directions for the choice of the ſoil, its ſituation, aſpect, the manner of planting it, and the future cultivation of the vine, are ſo like to thoſe of Columella, that it would be needleſs to repeat them here.—They are, indeed, more explicit as to the grafting of the vine, which is performed in cleft, as for many ſorts of fruit trees, but with this difference, that a ſmooth part of the vine, at the diſtance of about ſeven or eight inches from the ſtem, and between two joints, is the moſt eligible part for inſerting the cion, which, as repeatedly ſaid before in other ſimilar caſes ſhould always be taken from the beſt bearing branch of the moſt fruitful vine. All ſmall roots are cut away from about the place where the graft is to be inſerted, and after it has been exactly fitted in the cleft, ſo as to make the inner bark of the cion coincide preciſely with that of the ſtock, the wound is carefully bound up tight with ſlips of the inner bark of a young lime tree, of a willow, or with baſs, in ſuch manner as effectually to preſerve it from the entrance of air or wet. The graft and its ſtock are then bent gently downward into a hole made on purpoſe to receive them, and are covered with earth ſo as to leave only two eyes of the cion above ground. The cion ſhould be uſed as ſoon as poſſible after it has been cut, and its length ſhould be about twelve inches.

Neither the middle ſized vines, nor the low ones, of which two ſorts all the beſt and principal vineyards in France conſiſt, ſhould be ſhaded by any neighbouring buildings, or trees. The tall vines in the ſouthern provinces of France, ſuch as Provence and Languedoc, are, like thoſe in Piedmont, Italy, and other very warm countries, reared up to trees, or formed into alcoves or arched walks, the better to defend them from the too ſcorching heat of the ſun. The ſorts thus planted are chiefly the Cioutat, the Corinth, the Damaſcus grape, and the Bourdelais. The vines about Auxerre are trained up againſt eſpaliers and trelliſes; but thoſe of the loweſt growth, of which moſt of the vineyards about Paris, Beaune, Tonnere, Chablis, &c. conſiſt, are faſtened only to common props, and are generally found to produce the greateſt quantity of fruit, and, in ſome years, the beſt wine.

The people of Champagne, (who think that there is in the ſoil of their province a quality ſo peculiarly fit for the production of fine wine, as can never be found or imitated elſewhere) plant their talleſt vines in their middling lands, and the low ones in their beſt grounds. The former of theſe are reared to the height of four or five feet, and the latter to about three. They obſerve, that their vineyards yield the higheſt flavoured wine when they are moſt expoſed to the ſun; and therefore they always prefer a ſloping ſituation, fully open to the ſouth, for their beſt growths. They alſo prefer ground which is ſomewhat ſtony, and not naturally ſubject to much moiſture. They manure this ſoil from time to time, by laying on dung and freſh earth; but with caution not to uſe too much dung, becauſe that would render the wine flat and inſipid, and apt to become ropy. They think cows dung better than that of horſes, for their fineſt ſoils, becauſe it is not ſo hot: but for ſtiff lands they uſe thoroughly rotted horſe-dung, and ſheep's dung, which they mix with about double the quantity of cow dung, to prevent its burning the roots of the vines. Towards the end of autumn, they ſpread in trenches cut acroſs the vineyard, layers of this dung and of freſh earth, and after this mixture has remained there all the winter, to moulder, and grow mellow; they lay about half a baſket full of it, early in the ſpring, to the roots of each vine, and particularly to thoſe of the lateſt planted; making for that purpoſe a hole around it, deepeſt at its back, where the ſloping ground is higheſt. This is done over the whole vineyard either every eighth or tenth year, or, which amounts to the ſame, to an eighth or a tenth part of it each year.

The grapes moſt generally cultivated in Champagne are a ſmall black ſort; and to render the wine of that country the more perfect, great care is taken to root out all white ones, and ſuch as, though black, are large and coarſe: or, if thoſe vines are not pulled up, they are grafted with ſuch fruit as is deſired.

About the end of June, and ſometimes even in May, according to the forwardneſs of the vine, the upper end of each ſhoot is nipped off, in order that the greater quantity of nouriſhment may be conveyed to the fruit; for it is beſt that no part of a low vine be more than two feet and an half, or three feet, high from the ground. Theſe low vines are earthed, as it is called, every ſpring; that is to ſay, they are inclined down into a hole dug cloſe to them, and their ſhoots, being previouſly pruned to ſuch lengths as are moſt conſiſtent with the vigour of the vine, are covered with earth ſo as to leave only three or four of their eyes above the ground.—In Upper Picardy, it is the cuſtom to renew, as it is termed, the vineyards every year, by burying the vines in this manner, and converting each branch into a layer.

It is a general rule, that the ſtronger the ſoil is, the farther aſunder the vines ſhould be planted; and that no layers, grafts, or cuttings ſhould be uſed, but ſuch as have a ſmooth ſhining bark, and of which the wood is of a clear green when cut. Thoſe that are of a brown green, when a little bit of their rind is raiſed up with a knife, are rejected, as good for nothing.

To guard againſt the bad effects of froſts and fogs, the French vine-dreſſers, whenever they apprehend any danger of that kind, lay along that ſide of the vineyard from whence the wind blows, a ridge of dry litter, or ſtraw, which they then burn ſlowly: but if, notwithſtanding this, the vines are frozen, they cut them down very low, to enable them to bear the better the next year.

They hold it to be neceſſary, after a thick fog, to water their vines with juice of the roots or leaves of wild cucumbers, or with powdered coloquintida, mixed with water; and they are alſo of opinion that late pruning is frequently a means of guarding againſt the mildew, becauſe their vines do not then bloſſom till the ſun is become very powerful.

Careful huſbandmen never ſuffer any one to go into their vineyards very early in the morning when dews or damps fall in May, June, or September; becauſe the dew of thoſe months, being generally cold, would bliſter the leaves of the vines if it were to be touched, and thereby fixed upon them before the riſing of the ſun; which afterwards removes that danger by drying up and exhaling the moiſture: neither do they allow them to be entered, on any account, immediately after a haſty ſpring-ſhower, while the leaves are yet wet therewith, or when they are covered with a rime or hoar-froſt.

Sea-water, ſalt and water, or ſtale urine mixed with dung and earth, are of excellent ſervice to vines which do not bear well, and to thoſe whoſe leaves turn red for want of moiſture: and it is ſaid that, when their leaves become white and dry, when their wood ſwells, and when their fruitdrops off, all which are ſymptoms of decay, they are recovered by rubbing the ſtem, and watering their roots, with aſhes reduced to powder and mixed with ſtrong vinegar.—It is moſt certain that ſtirring of the ground around them, and keeping it in a fine looſe ſtate, will have this deſirable effect; or rather it will keep them conſtantly in ſo vigorous a condition, that there will never be occaſion to recur to other means to promote their fertility: neither will there, if this eſſential principle of vegetation is duly applied to, be any danger of the grapes ſhrivelling or growing dry upon the to greater perfection, it was neceſſary that I ſhould attend chiefly to the three following things. 1. To diſpoſe the vines in a better manner, by planting them in ſtrait lines, and at equal diſtances from each other. 2. To contrive that diſpoſition ſo as to leſſen the preſent expence of culture, by uſing a plough to ſtir the ground in one part of the vineyard, whilſt the other ſhould continue to be ſtirred with the ſpade. 3. To execute the ſeveral cultures of the vine, in ſuch manner as to make them promote its vegetation more than they do in any of the common methods.

“ I ſhall treat each of theſe articles ſeparately.

“ The diſpoſition which ſeemed to me the moſt agreeable to the principles of the New Huſbandry, by which I was guided, was to lay the vineyard out in beds, as we do fields for corn, obſerving to leave an alley between every two beds, and making each bed five feet wide, in order to plant it with three rows of vines, which, by that means, would be thirty inches aſunder, and the vines at the ſame diſtance from each other in the rows.

“ As to the alleys, I thought it would be right to make them alſo five feet wide: and what I ſhall ſay hereafter will ſhew, that about that breadth is neceſſary.

“ However, as that diſpoſition might not be the beſt, I tried others on ſmall ſpots of ground, by planting the vines at other diſtances. Some were ſet in ſingle rows three feet and an half aſunder; others in double rows, and in beds, with alleys of three feet and an half between them. Theſe plantations, were made in the ſpring of 1753.

“ But as I could not expect to ſee the event of theſe trials, till a conſiderable time after making them, eight or ten years, at leaſt, being requiſite to ſhew what the ſucceſs would be, when the vines ſhould be come to their full ſtrength and bearing; I conſidered at the ſame time, by what means I might abridge an experiment which was to be of ſo long duration.

“ To that end, I formed a bed of vines in a vineyard planted twenty-four years before. The vineyard was good, and yielded plentiful crops. I made my bed five feet wide, and planted it by laying down ſtocks of the old vines, to make the two outward rows, leaving two feet and an half diſtance from one layer to another. The old vines, which happened to be pretty well ſituated, formed the middle row. The remainder of the bed, which is two hundred and forty feet long, was planted with layers.

“ An alley, five feet wide, was made on one ſide of this bed, by pulling up the old vines within that diſtance. Some of theſe which were left, ſerved to form a row of vines, ready againſt the making of a ſecond bed parallel to the firſt. It is plain, that the making of a bed in this manner, requires a breadth of ten feet, viz. five feet for the vines, and five feet for the alley. This bed was thus made in November 1752.

“ After I had ſeen the crop which it produced in 1754, I no longer heſitated to extend this experiment; and accordingly, in November of that year, I made three other beds, like the former, and cloſe to it.

“ I not only made no doubt but that the vines, being ſo diſpoſed, and having an equal quantity of earth to draw their nouriſhment from, would thrive better than they do in our common method of cultivating them; but I likewiſe hoped that their being expoſed on all ſides to the influences of the ſun and air, by means of the alleys, would facilitate their vegetation, and haſten the ripening of the grapes.

“ The manner in which I propoſed diſtributing the vines, ſhews at once the poſſibility and facility of giving the alleys every neceſſary culture, with the ſame plough and the ſame cultivator as we uſe for the alleys of our corn fields. I have not found the leaſt difficulty in the execution of this practice.

“ The ground thus cultivated in the alleys, will be about a third part of the whole: the remaining two thirds will continue to be cultivated by hand, as uſual; and the expence will be conſiderably diminiſhed, by the diſpatch with which the plough, or cultivator, will perform its part.

“ The plough may be brought as near the vines as one pleaſes, provided care be taken not to damage them. An expert huſbandman will eaſily know how to manage in that reſpect.

“ Another diminution of the expence attending the common culture of vineyards is, that as, by the method which I propoſe, the number of vines will be fewer, they will of courſe require leſs labour, and therefore leſs coſt; and the vine-dreſſers, meeting with no hindrances or obſtructions between the vines planted regularly in rows, will do more work in a day, and that much better, than in the old way. There will alſo be leſs occaſion for many things neceſſary to the vine, ſuch as propping, tying up, dunging, &c. Conſequently this new culture will prove a conſiderable ſaving.

“ It is well known how much vines are hurt when too great a quantity of water is retained in the ground. It chills them too much, their juices become leſs exalted, numbers of weeds ſpring up, &c. Theſe inconveniences will be remedied in a great meaſure, by means of the alleys, by cutting with the plough, as I have done, towards the beginning of winter, a furrow along each ſide of the bed. The water will drain off into that furrow, and the bed will retain only the degree of moiſture neceſſary for the vines.

“ I ſhall ſpeak only of the two principal parts of the culture of the vine, viz. the pruning of it, and the ſtirring of the ground; and the time when each of theſe ought to be performed.

“ Before I began to execute the alterations I had thought of making in this culture, I had endeavoured to make myſelf ſo far maſter of it, as to be the leſs in danger of miſcarrying in my experiment.

“ The cuſtom of this country is, to prune the vine during and after winter; frequently beginning that work about the end of January. I always thought that a wrong ſeaſon; and judged that it would be much better to prune the vine before winter, immediately after the vintage is ended. Experience has ſince ſhewed me that I was right.

“ In November 1750, I pruned above fifty vines with my own hands: none of them ſuffered in the leaſt by the winter's froſt: they made ſtrong and vigorous ſhoots, and produced a greater quantity of grapes than any of the neighbouring vines.

“ The next year, and in the ſame month, I pruned the ſame vines again. This pruning had the ſame ſucceſs as the year before. Encouraged by this repeated experience, I determined to make the bed before mentioned, in my old vineyard. The vines have continued to be pruned before winter, always with ſucceſs, and without any ſort of inconvenience.

“ Satisfied with theſe firſt trials, I thought I might ſafely venture to extend the ſame practice to a larger extent of ground. I had about three acres of vines, which had produced very little wood for two years paſt. Their branches were ſo poor and ſlender, that they would ſcarce bear laying down: in ſhort, the vineyard periſhed daily. I conceived hopes of recovering it by means of this pruning. Accordingly, I pruned it in November 1754; and in 1755, the vines produced ſtronger and longer ſhoots. As the branches would then bear laying down, I began to repleniſh part of the vacant places. By this means, my vineyard was replanted with young vines, and quite renewed, only by altering the time of pruning.

“ This laſt pruning underwent a ſevere trial, from the exceſſive hard froſts of the winter of 1755: yet, intenſe as the cold was, my plants bore it, without being hurt at all. I then looked upon it as certain, that the vine might be pruned before winter, without any danger from the inclemency of that ſeaſon.

“ It was abſolutely neceſſary that the vine ſhould bear pruning at that time, in order to enable me to perform the other cultures in their proper and moſt favourable ſeaſons.

“ That the vine may be benefited as much as poſſible by every ſtirring of the earth about its roots, theſe ſtirrings ought certainly to be performed at the times when they may be moſt likely to excite the greateſt vegetation. Let us ſee whether the common practice anſwers that end. The uſual time of beginning to dreſs the vineyard is in the ſpring, immediately after pruning the vine, three dreſſings are judged ſufficient; and it is generally thought, that the laſt ſhould be finiſhed by midſummer. The plants are then left to ſhift for themſelves, till the time of vintage, which is upwards of three months after. During this time, quantities of weeds generally ſhoot up, which ſhade the vines, and hinder the grapes from ripening as they ought. Careful huſbandmen pull them up: but the greater part are unwilling to take that trouble.

“ In the common way of cultivating the vine, the earth is firſt ſtirred when the buds are juſt ready to come out, and even after they are come out; a time always extremely critical, becauſe the uncertainty of the ſeaſon expoſes the buds to ſeveral dangers, which are increaſed by that ſtirring of the earth, from whence many exhalations, oftentimes very pernicious, proceed at this ſeaſon. Would it not be much better to let the vineyard reſt while the vine is budding?

“ The laſt ſtirring, which is given about mid-ſummer, is too long before the vintage, and therefore is almoſt always followed by great quantities of weeds. Might not this laſt culture be performed later?

“ I have experienced that theſe inconveniences may be avoided, without falling into others. To this end, after the vine has been pruned, before winter, let the earth be firſt ſtirred in that ſeaſon: the ſecond ſtirring, which would otherwiſe be immediately after winter, may then be deferred till towards the end of May: and the third ſtirring may be given in the beginning of Auguſt, or about the end of July.

“ This has been my method of cultivating my vines, ever ſince their being planted in beds. The beds are dug by hand, and the alleys are ſtirred with the plough or the cultivator.

“ The firſt ſtirring before winter produces the ſame effect on the vineyards, as it does on our beds of corn. The water is drained off, and the winter's froſts penetrate the earth, divide it, and keep it looſe and light.

“ It remains in this ſtate till towards the end of May, when it receives the firſt ſtirring after winter: and, to have a more certain rule to go by, the ſecond ſtirring ſhould not be given till after the props have been ſtuck, the vines have budded, and the ſhoots have been tied up to the props. This ſtirring may be given, either a little ſooner, or a little later, than is mentioned above, according to the ſeaſon. Sometimes one may be obliged to haſten it, if the ground is greatly burdened with weeds: but at whatever time it be performed near the end of May, it is certain that the vine will then have made great ſhoots, and that without having been diſturbed by any ſtirring of the earth during the time of its tender vegetation. As I have tryed this culture in hot and very dry years, I have ſeen that the earth has not grown hard, but has retained the neceſſary degree of moiſture, ſo as to be ſtirred with the greateſt eaſe.

“ The third ſtirring, which is the ſecond after winter, being deferred till towards the end of Auguſt, or at leaſt till the end of July; weeds have not time to grow in any quantity between that and the ſeaſon of the vintage: and what will render it ſtill more beneficial, is, that this is the time when the grapes fill moſt, and are drawing towards a ſtate of maturity.

“ I may perhaps be thought not to enlarge enough on ſo important a ſubject as this is. It will, I confeſs, require being treated more fully hereafter: but in the mean time I beg the reader to conſider, that I am now relating only the ſucceſs of my firſt tryals.

Good effects of this culture proved by the produce of a bea of vines two hundred and forty feet long, planted in 1752.

“ I obſerved, in the beginning of this account, that every culture of the vine is performed with much greater eaſe and expedition in vineyards laid out in beds, than in thoſe which are planted all over; but at random. The very ſituation of the vines planted regularly in beds, is ſufficient to ſhew with what eaſe every thing that they require may be done, and that they muſt, of courſe, be well cultivated in every reſpect.

“ In the next place, the pruning of the vine, and the firſt ſtirring of the earth before winter, are done at a time when the buſineſs of the field is over, and huſbandmen are, in ſome meaſure un-occupied. That time, which would otherwiſe be in a manner loſt, may now be employed to very great advantage; and in conſequence of their being advanced in their work before the coming on of winter, inſtead of being over-loaded in the ſpring, by a multitude of things to be done at that time, they will have ample leiſure to attend properly, and without being hurried, to every branch of culture that a farm requires.

“ The effect of our culture has been extremely viſible. The new vines have grown ſo prodigiouſly, that they now greatly ſurpaſs thoſe of the old vineyards, which they were part of: the ſhoots too are thicker and longer, and the bunches of grapes bigger and more numerous.

“ When I firſt began to apply the principles of the New Huſbandry to the culture of the vine, I hoped indeed that the great fruitfulneſs of a ſmaller number of plants, might compenſate for the loſs of thoſe I was obliged to retrench: but I was agreeably ſurpriſed to find all the vines of my bed loaded with an equal quantity of grapes.

“ Though my conjecture was founded on principles which I knew to be true, I was ſtill further confirmed in my opinion by an obſervation I had made, that, even in our beſt vineyards, there are always great numbers of vines which abſolutely bear no fruit at all, and many others which produce but very little; ſo that it is not on the great number of plants that the great produce of the vineyard depends, but on the goodneſs of thoſe plants.

“ Accordingly I concluded that I ought not to look upon my having taken up ſome vines in order to form the alley, as a loſs, provided thoſe in the bed were enabled by good culture to yield their utmoſt productions. The event ſhewed that I was right.

“ I likewiſe judged, that the grapes would ripen more perfectly in this new way, than in the old: and in that too I was not miſtaken; for they were much higher flavoured, and made far better wine.

“ Beſides theſe advantages, this culture preſerved my vines from a very bad accident, which happens frequently, eſpecially when the autumn is rainy: I mean, the rotting of the grapes. In our common vineyards, the grapes ripen, ſmothered beneath that quantity of leaves with which the vines are loaded, and ſurrounded by numbers of weeds, which often grow higher than the vines themſelves. Add to this, that the air around them is filled with various exhalations from the earth, which, for want of a free circulation, remain ſuſpended about the plants. Theſe cauſes cannot but make the grapes rot, and the wine that is made of them, muſt be greatly inferior to what it would otherwiſe be.

“ Our vines in beds, being much leſs, if at all, liable to any of theſe accidents, will have the advantage of preſerving their grapes ſound and without rottenneſs, till they are perfectly ripe. This I have already experinced, at a time when above half the grapes of my old vineyard were abſolutely rotten.

Notwithſtanding all the advantages of this new method, which, I may ſay, I have only glanced at, they would probably not be regarded, if they were not attended with greater fruitfulneſs than is obtained in the common way. I ſhall therefore ſhew, that the produce of my young vines was very conſiderable, and greatly ſuperior to that of my old vineyard.

“ My bed, as I obſerved before, was formed in November 1752; and the two outward rows conſiſted, in a great meaſure, of young layers, which not being old enough in 1753, to bear much fruit, I could not expect any great matter from them that year. However, they bore as much as could reaſonably be deſired. A violent ſtorm of hail which fell in June, left ſcarce any thing to be gathered in all our other vineyards.

" The year 1754 produced, in general, but little wine. The young plants of my bed, being then only in their ſecond year, were too weak to diſtinguiſh themſelves by any extraordinary quantity of fruit; though their vigour gave great hopes for future years. However, even in this, they were loaded with ſo many and ſo large bunches of grapes, that they yielded rather more wine than the old vines which were next them.

" The year 1755 was one of the beſt years for wine, that has been known for a long time. The quantity was plentiful, and the quality exceeding good. The youngeſt plants of my bed, which were only in their third year, ſeemed no way inferior to the old vines cultivated in the common way.

" This bed, two hundred and forty feet long, and ten feet wide, including the alley, yielded three hundred and thirty-ſix pints of wine, Paris meaſure (eighty-four Engliſh gallons), which was after the rate of two fifths more than I had from my old vineyard; or to explain myſelf ſtill better, if my whole vineyard had been laid out in beds, it would have yielded five barrels of wine, for every three that it did yield.

" Twenty beds of the ſize of that we are ſpeaking of, would make about an arpent; and ſuppoſing them all to produce alike, they would, after the rate of this, yield ſix thouſand ſeven hundred and twenty Paris pints (one thouſand ſix hundred and eighty Engliſh gallons), or twenty-eight hogſheads; which, in this country (the territory of Geneva), is a prodigious quantity; ſuch as no vineyard here has ever yet produced.

" The vintage of 1756 was neither plentiful nor good. I therefore did not make any compariſon; but remained ſatisfied with obſerving in general, that my bed yielded at leaſt as much as the old vineyard."

VINEYARD, a plantation of vines.

For the beſt ſituation of, and manner of planting, a vineyard, ſee the preceding article.

VIOLET, *Viola*, a genus of plants ranged by Linnæus among the *ſyngeneſia monogamia*, and of which there are nineteen ſpecies, but as many of them are natives of this country, and but few cultivated in the gardens, it is not neceſſary to deſcribe them.

Culture of the VIOLET.

Violets may be propagated by ſeeds, which ſhould be ſown ſoon after they are ripe. In ſpring, when the plants are ſtrong enough to be removed, they muſt be tranſplanted in ſhady borders, where they may ſtand till autumn, at which time they ſhould be tranſplanted into the places in which they are deſigned to remain.

The common ſorts of violets are eaſily propagated by parting of their roots, which may be done at Michaelmas. They ſhould have a moiſt ſoil, and a ſhady ſituation.

Dame's VIOLET. See the article ROCKET.

Dog's VIOLET. See the article DOG'S-TOOTH.

VIORNA, a ſpecies of Clematis. See CLEMATIS.

VIPER'S BUGLOSS, *Echium*, a genus of plants ranged by Linnæus among the *pentandria monogynia*, and of which there are ſix ſpecies. 1. Viper's Bugloſs with a ſhrubby ſtalk. 2. Viper's Bugloſs with petals ſcarce exceeding the cup, and hairy borders. 3. Viper's Bugloſs with a ſimple erect ſtalk, the ſtalk leaves ſpear-ſhaped and rough, and flowers in ſpikes proceeding from the ſides of the ſtalks. 4. Viper's Bugloſs with fruit-bearing cups, growing at a diſtance, and a trailing ſtalk. 5. Viper's Bugloſs with a branching ſtalk, oval ſtalk leaves, and ſingle ſide flowers. 6. Viper's Bugloſs with petals longer than the ſtamina.

The firſt ſpecies is a ſhrubby plant, and a native of Ethiopia. The ſecond grows naturally in this country, and in Italy. The third is a native of moſt parts of Europe. The fourth of Crete. The fifth of the Eaſt, and the ſixth of the ſouthern parts of Europe.

Culture of the VIPER'S BUGLOSS.

The fifth ſpecies is propagated by ſeeds, which ſhould be ſown in autumn, ſoon after they are ripe, in pots filled with light ſandy earth. In October the pots muſt be placed under a frame to protect them from the froſt; but in mild weather they ſhould be allowed plenty of free air. When the plants will bear removing, let them be planted each into a ſmall pot, filled with light earth, and placed under a frame till they have taken new root, after which they muſt be gradually inured to the open air. In May let them be placed abroad in a ſheltered ſituation, and in October removed into an airy glaſs-caſe.

The ſecond and third ſpecies are propagated by ſeeds, which ſhould be ſown in the ſpring in a gravelly ſoil, or on the tops of old walls and buildings, where, when once the plants have eſtabliſhed themſelves, they will ſcatter their ſeeds, and thereby maintain a ſucceſſion of plants without any farther trouble.

The fourth and fifth ſpecies are alſo propagated by ſeeds; when the plants come up, they will require no other care but to be kept clean from weeds, and thinned where they grow too cloſe.

The ſixth ſpecies is never cultivated in gardens.

VIPER'S GRASS. See the article *Viper's* GRASS.

VIRGIN'S BOWER, *Clematis*. See the article CLEMATIS.

VIRGINIAN SILK. See the article *Virginian* SILK.

UMBELLÆ, or UMBELLS, the round tufts or heads of certain plants ſet thick together, and all of the ſame height.

UMBELLIFEROUS PLANTS are ſuch as have their tops branched and ſpread out like an umbrella; on each little ſubdiviſion of which there is growing a ſmall flower; ſuch are fennel, dill, &c. This flower is always pentapetalous, and is ſucceded by two naked ſeeds adjoining to each other, which are, according to Ray, the true characteriſtics that diſtinguiſh theſe plants from others.

VOLKAMERIA, a genus of plants of which there are only two ſpecies. 1. Prickly Volkameria. 2. Smooth Volkameria. The firſt ſpecies is a native of the Weſt Indies, and the ſecond of both Indies.

Culture of the VOLKAMERIA.

Theſe plants are propagated by cuttings, which, in May, June, or July, ſhould be planted in pots, and plunged into a moderate hot bed, covering them cloſe with hand glaſſes. When they have put out roots, they ſhould be carefully ſeparated, and each planted in a ſmall pot, and plunged into a gentle hot-bed till they have taken freſh root, after which they may be inured to the open air. In winter theſe plants ſhould be removed into a part of the ſtove where there is no great heat.

VOLVA is a ſort of calyx conſiſting of a membranous matter ſurrounding the baſes of many of the Fungi, or Muſhroom tribe, and in many of them of a very ſingular figure and ſtructure.

W.

WACHENDORFIA, a genus of plants of which there are only two ſpecies. 1. Wachendorfia with a ſimple ſtalk. 2. Wachendorfia with ſtalks which have many flower ſtems.

Theſe plants are both natives of the Cape of Good Hope.

Culture of the WACHENDORFIA.

Both theſe ſpecies may be propagated either by ſeeds, or by off-ſets from their roots; if by ſeeds, they ſhould be procured from the Cape of Good Hope, unleſs ſome have ripened favourably in this country, which they ſeldom do. When the ſeeds arrive they muſt be ſown in pots, and placed under a frame where they muſt remain all the winter. In ſpring the plants will appear, and when they are ſtrong enough to remove, they ſhould be each planted in a ſeparate ſmall pot, and may remain abroad till autumn, at which time the pots ſhould be again placed under a frame.

If they are propagated by off-ſets, they muſt be planted in ſeparate pots, and after they have taken root, may be treated in the ſame manner as the ſeedlings.

WAKE ROBIN, See the article Arum.

WALKERIA, a genus of plants of which there is only one ſpecies.

This plant is a native of the Eaſt Indies. The branches trail on the ground. The leaves are round, of a thick conſiſtence, and a blueiſh colour. The flowers are of a bright blue colour.

Culture of the WALKERIA.

It is propagated by ſeeds, which muſt be ſown in ſmall pots, and plunged into a hot-bed, if the plants do not come up in time the pots muſt be removed to a ſecond hot-bed, which will cauſe the ſeeds to vegetate.

When the plants come up, and are ſtrong enough to remove, they ſhould be planted into ſeparate ſmall pots, and plunged into a hot-bed of tanners bark, ſhading them till they have taken root again, after which they ſhould have a large ſhare of freſh air admitted to them, when the weather is warm, and be duly watered. The beginning of July they will flower and the ſeeds will ripen in autumn.

WALKS: thoſe made of gravel, ſand, or graſs, are the moſt common in England; but where gravel or ſand cannot be procured, they are ſometimes laid with powdered coal, ſea-coal, aſhes, or powdered brick.

In order to the laying of gravel-walks, it is very proper that the bottoms of them are filled with ſome lime-rubbiſh, coarſe gravel, flint-ſtones, or other rocky materials. This bottom muſt be laid eight or ten inches thick, over which the coat of gravel ſhould be ſix or eight. The common allowance for a gravel-walk of five feet breadth, is an inch riſe in the crown; ſo that if a walk be twenty feet wide, according to this proportion, it will be four inches higher in the middle than on each ſide; and a walk of twenty-five feet will be five inches; one of thirty feet ſix inches; and ſo on.

The beſt method of laying gravel-walks firm, is to give them three or four water-rollings; that is, they muſt be rolled when it rains ſo very faſt, that the walks ſwim with water: this will cauſe the gravel to bind. Iron-mould gravel is the beſt for binding: or gravel with a little binding loam amongſt it.

The beſt gravel for walks is ſuch as abounds with ſmooth pebbles, which being mixed with a due proportion of loam, will bind very faſt, and is never injured by wet or dry weather. The width of the walks muſt always be proportioned to their length, and the ſize of the garden. For farther particulars, ſee Gravel. For the method of laying out graſs-walks in a garden, ſee Grass.

Sand-walks are alſo frequently made in gardens, as being leſs expenſive in the making and keeping than the former; for as the greateſt part of the walks made in gardens are carried about in an irregular manner, it would be very difficult to keep them handſome if they were made of gravel; and as the walks are, for the moſt part, ſhaded with trees, ſo the dripping of the water from their branches in hard rains, would waſh the gravel in holes, and render the walks very unſightly.

When the ground is traced out in the manner the walks are deſigned in, the earth ſhould be taken out of the walks, and laid in the quarters. The depth of this ſhould be proportioned to the nature of the ſoil; for where the ground is dry, the walks need not be elevated much above the quarters; ſo the earth ſhould be taken out four or five inches deep in ſuch places: but where the ground is wet, the bottom of the walks need not be more than two inches below the ſurface, that the walks may be raiſed ſo high as to throw off the wet into the quarters.

After the earth is taken out, the bottom of the walks ſhould be laid with rubbiſh four or five inches thick, and beaten down as cloſe as poſſible: then the ſand ſhould be laid on about three inches thick, and after treading it down it ſhould be raked over, to level and ſmooth the ſurface: in doing of this, the whole ſhould be laid a little rounding, to throw off the wet: but there will be no neceſſity of obſerving any exactneſs therein; for as the whole ground is to have as little appearance of art as poſſible, the grounding ſhould appear natural; and only ſo contrived, as that the water may have free paſſage off.

WALLS, in gardening. Of all materials for building walls for fruit-trees, brick is the beſt: it being not only the handſomeſt, but the warmeſt and kindeſt for the ripening of fruit, and affording the beſt conveniency for nailing, as ſmaller nails will ſerve better in brick than it will in ſtone-walls, where the joints are larger; and if the walls are coped with free-ſtone, and ſtone pilaſters, or columns at proper diſtances, to ſeparate the trees, and break off the force of the wind, they are very beautiful, and the moſt profitable walls of any others; the bricks of ſome places are not of themſelves ſubſtantial enough for walls, and therefore ſome perſons, that they might have walls both ſubſtantial and wholeſome, have built theſe double, the outſide being of ſtone, and the inſide of brick: but there muſt be great care taken to bind the bricks well into the ſtone, otherwiſe they are very apt to ſeparate one from the other, eſpecially when froſt comes after much wet.

There have been ſeveral trials made of walls built in different forms; ſome of them having been built ſemicircular; others in angles of various ſizes, and projecting more towards the north, to ſcreen off the cold winds: but there has not as yet been a method which has ſucceeded near ſo well as that of making the walls ſtrait, and building them upright.

Thoſe who build their walls ſubſtantially will find them anſwer much better than thoſe which are ſlightly built, not only in duration, but in warmth: therefore a wall two bricks thick, will be found preferable to that of one brick and a half: and if in building of garden-walls they are grouted with ſoft mortar, to fill and cloſe all the joints, the walls will be much ſtronger, and the air will not ſo eaſily penetrate, as it does through thoſe which are commonly built.

For the aſpect or ſituation of garden-walls, ſee the article Exposure.

WALL-FLOWER, a ſpecies of Cheiranthus, or Stock July-Flower. See the article *Stock July-*Flower.

WALNUT-TREE, *Juglans*, a genus of plants ranged by Linnæus among the *monoecia polyandria*, and of which he diſtinguiſhes only three ſpecies. 1. Walnut-tree, with oval, ſmooth, ſawed, and equal ſmall leaves; or the common Walnut-tree. 2. Walnut-tree, with ſpear-ſhaped, ſawed, ſmall leaves, and the exterior ones larger; or the white Virginia Walnut, or Hickery Nut. 3. Walnut-tree, with ſpear-ſhaped, ſawed, ſmall leaves, and the exterior ones ſmaller; or the black Virginia Walnut.

Of the firſt ſpecies there are ſeveral varieties; *viz.* The large Walnut; the thin-ſhelled Walnut; the French Walnut; the late ripe Walnut; and the double Walnut.

But all of theſe vary when raiſed from ſeed, for which reaſon, ſuch as plant theſe trees for their fruit, ſhould make choice of them in the nurſeries, when they are under fruit, that they may not be diſappointed of ſuch as they would chuſe to have.

This tree is not only cultivated for its fruit, but alſo for its wood, which before mahogany was imported, was in univerſal eſteem in England.

Culture of the WALNUT-TREE.

All the ſpecies and varieties are propagated by planting their nuts, which, if done in a nurſery, the trees ſhould be tranſplanted out, when they have had three or four years growth, to the places where they are deſigned to remain: for they do not bear tranſplanting when they are of a large ſize; therefore there may be a number of theſe trees planted, which need not be ſet at more than ſix feet apart, till they have produced fruit, at which time thoſe which bear fruit of the kind that is deſired, may be left ſtanding, and the other cut up, to allow them room to grow.

When the ſeveral ſorts of this tree are propagated for timber, they ſhould be ſown in the places where they are to remain. The nuts ſhould be preſerved in their outer covers in dry ſand till February, when they ſhould be planted in lines, at the diſtance you intend them to ſtand: but in the rows they may be placed rather cloſe, leſt the nuts ſhould not all ſucceed: and if they ſhould, the young trees may be removed after they have ſtood two or three years, leaving the remainder at the diſtance they are to ſtand.

The beſt time for tranſplanting theſe trees, is as ſoon as the leaves begin to decay. The greateſt care is requiſite on this occaſion: for neither the roots nor large branches muſt be pruned, and if theſe are preſerved intire, there will be little danger of their ſucceeding.

The branches of theſe trees ſhould never be pruned or lopped while they are growing, unleſs there is an immediate neceſſity for it, and then it ſhould be done early in September, that the wound may heal before the cold increaſes, and they ſhould always be cut off quite cloſe to the trunk.

This tree thrives beſt in a rich loamy ſoil, or ſuch as is inclinable to chalk, or marle, but it will likewiſe ſucceed tolerably well in ſtony ground. The trees ſhould never be left at leſs than forty feet diſtance.

WALTHERIA, a genus of plants of which there are only two ſpecies. 1. Waltheria, with oblong, oval, ſawed leaves. 2. Waltheria, with oval, ſawed, veined leaves.

The firſt ſpecies is a native of both Indies. It riſes with a ſhrubby ſtalk, covered with ſoft hairs, ten feet high. The leaves are hairy and ſoft, having ſeveral longitudinal veins. The flowers are ſmall, yellow, and grow in cluſters from the wings of the branches.

The ſecond ſpecies is a native of Campeachy. The ſtalks are ligneous, riſing ſix, and ſometimes ſeven feet high, dividing into ſeveral branches. The leaves are oval, of a yellowiſh green colour, ſawed on their edges, and hairy. The flowers are very ſmall, yellow, and are collected into round cluſters cloſe to the wings of the leaves.

Culture of the WALKERIA.

Theſe plants are propagated by ſeeds, which muſt be ſown on a hot-bed, and when the plants are fit to remove they ſhould be each tranſplanted into a ſeparate ſmall pot, and plunged into a freſh hot-bed, after which they muſt be removed into the bark-ſtove, and placed in the tan-bed, where they ſhould always remain.

If theſe plants ſtand long without being diſturbed, they will root in the tan-bed through the holes in the pots; therefore in ſummer the pots ſhould be drawn out of the tan every ſix weeks; and the plants ſhould always be new potted once in three months.

WATER: one of the moſt conſiderable requiſites belonging to a garden; in the kitchen-garden it is abſolutely neceſſary: for without it there cannot be much expected; therefore, in ſuch places where a ſupply of water cannot be obtained for baſons or ponds, wells muſt be dug; and if the depth of water ſhould prove too great to be raiſed by pumps, there muſt be either machines for raiſing it contrived, or elſe it muſt be drawn by hand; but in ſuch places where the water requires machines for raiſing it, there is very little encouragement to make a kitchen-garden: for the conſtant ſupplying of water in thoſe dry ſituations, will be attended with great expence; and in general the produce of ſuch land is very trifling, eſpecially in a dry ſeaſon.

When kitchen-gardens are ſupplied with water from wells, it is neceſſary to have large ciſterns, into which the water ſhould be put ſome time before it is uſed, and expoſed to the ſun and air: for the rawneſs of water, when freſh drawn from wells, is prejudicial to the growth of vegetables; therefore where large ponds are near theſe gardens, from whence the water can be led into them, it is by far the beſt for the growth of vegetables: next to this, river-water is eſteemed the beſt, eſpecially from thoſe rivers which run through or near towns, where the water is fattened by the ſoil thrown into the rivers.

When good water can be obtained in plenty from the neighbourhood of the kitchen-garden, there ſhould be two or three baſons made in different parts of it, and ſo contrived that no part of the garden ſhould be too far diſtant from the water: for when the water is to be carried to a conſiderable diſtance, the expence of labour will be great, and there will likewiſe be much danger of the plants ſuffering from their being too ſparingly watered.

The ſize of the baſons ſhould be proportioned to the quantity of water which will be required, or that they can be ſupplied with; their depth ſhould not be more than four feet, for if they are made deeper, the water is not ſo well warmed and tempered by the ſun and air: for which reaſons the water of ſhallow baſons is much the beſt for the uſe of gardens. For the manner of making baſons, ſee the article BASON.

WATER-GERMANDER. See the article *Tree* GERMANDER.

WATER-LILY. See *Water* LILY.

WATER-PARSNEP. See the article *Water* PARSNEP.

WATSONIA, a genus of plants of which there are only two ſpecies. 1. Watſonia, with ſword-ſhaped leaves, and flowers placed alternately on the ſtalks. 2. Watſonia, with ſword-ſhaped leaves, and flowers diſpoſed in a looſe ſpike.

Theſe ſpecies are natives of the Cape of Good Hope. The root of the firſt ſpecies is bulbous, and ſhaped like a kidney, covered with a fibrous brown ſkin. The leaves are ſword-ſhaped, about a foot long, and an inch broad, ending in points; the two ſides have ſharp edges: they are of a dark green, and riſe from the root. The ſtalks grow out from the root between the leaves, and riſe to the height of a foot and a half. The flowers are produced from the ſide, at about an inch and a half diſtance from each other; they are of a red copper colour on the outſide, but of a deeper red within.

The ſecond ſpecies is much leſs than the firſt; the leaves are ſhorter and not ſo broad; the flower-ſtalk is ſeldom more than a foot high; the flowers are ranged cloſer upon the ſtalk, and they are of a deeper red.

Culture of the WATSONIA.

Theſe plants are propagated by off-ſets from the root; the beſt time for tranſplanting of the roots is in Auguſt, ſoon after the ſtalks decay; the larger roots muſt be each put into a ſeparate pot filled with freſh light earth, and placed in the open air till the end of October, when the leaves will begin to appear above ground, at which time the pots muſt be plunged into an old bed of tanners-bark, which has loſt its heat; the bed muſt be covered with a frame, and the glaſſes drawn off every day in mild weather, that they may have as much free air as poſſible, to prevent them from drawing up weak; but they muſt be covered in bad weather. Towards the end of April, when they begin to put out their flower-ſtalks, the pots muſt be removed into an airy glaſs-caſe, where they may ſtand to flower; and when the flowers are decayed, they ſhould be placed in the open air to perfect their ſeeds.

The off-ſets and ſmall roots may be planted three or four in a pot, according to their ſize, and require the ſame treatment as the larger roots the firſt year, and by that time twelvemonth they will be ſtrong enough to flower, ſo muſt have ſeparate pots.

WHIN. See the article FURZE.

Petty WHIN. See the article REST-HARROW.

Petty WHIN, a ſpecies of Broom. See BROOM.

WIDOW-WAIL, *Cneorum*, a genus of plants ranged by Linnæus among the *triandria monogynia*, and of which there is only one ſpecies.

This is an humble ſhrub, which grows naturally in France and Spain, and ſeldom riſes more than two feet and a half in this country, but ſpreads out on every ſide with many lateral branches, ſo as to form a thick buſh. The flowers begin to appear in May, and are ſucceeded by others during the ſummer months: it is an evergreen ſhrub, and ſo may be very ornamental in the front of plantations of evergreen trees and ſhrubs.

Culture of the WIDOW-WAIL.

It is propagated by ſeeds, which ſhould be ſown in the autumn ſoon after they are ripe, and then the plants will come up the following ſpring; whereas thoſe which are ſown in the ſpring will remain a year in the ground, and often miſcarry.

Theſe ſeeds may be ſown on a bed of common earth, covering them half an inch deep. The ſummer following they will require no other care, than that of keeping the plants clear from weeds; and the next autumn they may be tranſplanted where they are deſigned to remain.

WILDERNESS, in gardening, a kind of grove of large trees, in a ſpacious garden, in which the walks are commonly made either to interſect each other in angles, or have the appearance of meanders and labyrinths. See the articles *Grove* and *Labyrinth*.

According to Mr. Miller wilderneſſes ſhould always be proportioned to the extent of the gardens in which they are made; for it is very ridiculous to ſee a large wilderneſs planted with tall trees in a ſmall ſpot of ground; and on the other hand, nothing can be more abſurd, than to ſee little paltry ſquares, or quarters of wilderneſs-work, in a magnificent large garden.

The ſituation of a wilderneſs ſhould never be too near the habitation, nor ſo as to obſtruct any diſtant proſpect of the country; there being nothing ſo agreeable as an unconfined proſpect; but where, from the ſituation of the place, the ſight is confined within the limits of the garden, nothing can ſo agreeably terminate the proſpect, as a beautiful ſcene of the various kinds of trees judiciouſly planted; and if it is ſo contrived, that the termination is planted irregular, with the concave towards the ſight, it will have a much better effect, than if it end in ſtrait lines or angles.

The plants ſhould always be adapted to the ſize of the plantation; for it is very abſurd for tall trees to be planted in the ſmall ſquares of a little garden; and in large deſigns ſmall ſhrubs will have a mean appearance. It ſhould alſo be obſerved, never to plant evergreens amongſt deciduous trees; but always to place the ever greens in a wilderneſs in a ſeparate part by themſelves, and that chiefly in ſight.

As to the walks, thoſe that have the appearance of meanders, where the eye cannot diſcover more than twenty or thirty yards in length, are generally preferable to all others, and theſe ſhould now and then lead into an open circular piece of graſs, in the center of which may be placed either an obeliſk, ſtatue, or fountain; and if in the middle of the wilderneſs there be contrived a large opening, in the center of which may be erected a dome or banquetting-houſe, ſurrounded with a green plat of graſs, it will be a great addition to the beauty of the whole.

From the ſides of the walks and openings, the trees ſhould riſe gradually one above another to the middle of the quarters, where ſhould always be planted the largeſt growing trees, ſo that the heads of all trees may appear to view, while their ſtems will be hid from the ſight. Thus in thoſe parts which are planted with deciduous trees, roſes, honey-ſuckles, and other kinds of low-flowering ſhrubs, may be planted next the walks and openings; and at their feet, near the ſides of the walk, may be planted primroſes, violets, daffodils, &c. not in a ſtrait line, but ſo as to appear accidental, as in a natural wood.

Behind the firſt row of ſhrubs ſhould be planted ſyringas, and other flowering ſhrubs of a middle growth; and theſe may be backed with many other ſorts of trees, riſing gradually to the middle of the quarters.

The part planted with evergreens may be diſpoſed in the following manner, viz. in the firſt line next the great walks, may be placed the lauruſtines, boxes, ſpurge-laurel, juniper, ſavin, and other dwarf evergreens. Behind theſe may be planted laurels, hollies, arbutuſes, and other ever-greens of a larger growth. Next to theſe may be planted, yews, cypreſſes, Virginia cedars, and other trees of the ſame growth; behind theſe may be planted Norway and ſilver firs, the true pine, and other ſorts of the fir growth; and in the middle ſhould be planted Scotch-pines, pinaſter, and other of the large growing ever-greens, which will afford a moſt delightful proſpect, if the different ſhades of the greens are curiouſly intermixed.

And beſides the grand walks and other openings, there ſhould be ſome ſmaller ſerpentine-walks through the middle of the quarters, where perſons may retire for privacy; and by the ſides of theſe private walks may alſo be ſcattered ſome wood-flowers and plants, which if artfully planted, will have a very good effect, the grand walks ſhould always be laid with turf and kept well mowed.

Great care muſt be taken that there does not appear a ſtudied and ſtiff correſpondency between the ſeveral parts; for the greater variety there is in the diſtribution of theſe, the more pleaſure they will afford.

WILLOW-TREE, *Salix*, a genus of plants ranged by Linnæus among the *dioecia diandria*, and of which he diſtinguiſhes twenty-nine ſpecies which are too numerous to be deſcribed here, eſpecially as many of them, growing naturally in the northern parts of Europe, are low, creeping ſhrubs, of no uſe; and as one ſort of culture will do for ſuch ſpecies as are planted for ſervice.

Culture of the WILLOW-TREE.

The ſeveral different ſpecies of Willow raiſed in this country may be eaſily propagated by planting cuttings or ſets, either in the ſpring or autumn, upon moiſt boggy ſoils, where few other things will thrive.

WILLOW-HERB or *French* WILLOW. *Epilobium*, a genus of plants ranged by Linnæus among the *octandria monogynia*, and of which there are ſeven ſpecies, moſt of them natives of this country, but two only are cultivated, viz. 1. Willow-Herb with ſpear-ſhaped narrow leaves, thinly ſcattered on the branches. 2. Willow-Herb, with oppoſite ſpear-ſhaped ſawed leaves, commonly called codlins and cream.

Both theſe are perennial plants; and natives of this and moſt other countries of Europe.

Culture of the WILLOW-HERB.

They are eaſily propagated by their creeping roots, and will grow in any ſoil or ſituation.

WIND-FLOWER. See the article *Wind* FLOWER.

WINGS, *Alæ*. See the article ALÆ.

WINTER-ACONITE, a ſpecies of Black Hellebone. See the article Black HELLEBORE.

WINTER-CHERRY. See *Winter* CHERRY.

WINTER-GREEN, *Pyrola*, a genus of plants of which there are four ſpecies. 1. Winter green with riſing ſtamina, and a declining pointal. 2. Winter green with a bunch of flowers ranged on one ſide the footſtalk. 3. Winter green with one flower on the ſtalk. 4. Winter-green with two flowers on a foot-ſtalk.

The firſt ſpecies grows wild in many parts of this country. The ſecond ſpecies grows naturally upon the mountains in Italy, particularly near Verona and Genoa. The third ſpecies grows naturally in ſhady woods in the northern parts of Europe; and the fourth is a native of North America.

Culture of the WINTER-GREEN.

It is propagated by planting the roots, about Michaelmas, in a ſhady ſituation, and on a moiſt undunged ſoil, where they ſhould be frequently watered in dry weather, otherwiſe they will not thrive. Some of theſe may be planted in pots, which muſt be filled with a moſſy mooriſh ſoil, and placed in a ſhady ſituation, where, if they are conſtantly watered in dry weather, they will thrive very well.

WITCH-HAZEL. See the article *Witch*-HAZEL.

WOLF's BANE. See ACONITE.

WOODBINE, a ſpecies of Honeyſuckle. See the article HONEYSUCKLE.

WOOD-SORREL. See *Wood* SORREL.

WOOD-WAXEN, a ſpecies of Broom. See the article BROOM.

X.

XIMENIA, a genus of plants of which there are only two ſpecies. 1. Ximenia, with ſingle leaves. 2. Ximenia, with twin leaves.

The firſt ſpecies is a native of the iſlands in the Weſt Indies. The ſecond grows naturally in Egypt, where it becomes a tree of middling ſize.

Culture of the XIMENIA.

Both theſe ſpecies are propagated by ſeeds, which muſt be had from the countries where they are natives; theſe muſt be ſown in pots filled with light earth, and plunged into a hot-bed of tanners-bark. When the plants are about three inches high, they muſt be each tranſplanted into ſeparate ſmall pots filled with light earth, and plunged into a hot-bed of tanners-bark, and ſhaded from the ſun till they have taken new root. During the firſt ſummer they may be kept in the tan-bed under frames, where they will thrive much better than in the ſtove; but in the autumn, when the nights grow cool, they muſt be removed into the ſtove, and plunged into the tan-bed, in which they ſhould be kept, obſerving to ſhift them into larger pots when they require it; and in ſummer, when the ſeaſon is warm, they muſt have a large ſhare of free air admitted to them.

XIPHION, or XIPHIUM, a ſpecies of Iris. See the article IRIS.

XYLOSTELUM, a ſpecies of Honeyſuckle. See the article HONEYSUCKLE.

Y.

YARROW. See the article ACHILLÆA.

YEW-TREE, *Taxus*, a genus of plants ranged by Linnæus among the *dioecia monadelphia*, and of which there are only two ſpecies. 1. Yew-tree, with leaves growing near each other; or the common Yew. 2. Yew-tree, with leaves growing at a diſtance from one another.

The firſt ſpecies is a native of moſt parts of Europe; and the ſecond grows naturally in Japan, but is never cultivated in the Engliſh gardens.

Culture of the YEW-TREE.

It is eaſily propagated by ſowing the berries in autumn, as ſoon as they are ripe, upon a ſhady bed of freſh, undunged ſoil, covering them over about half an inch with the ſame earth. In the ſpring the bed ſhould be carefully cleared from weeds, and if the ſeaſon proves dry, it ſhould be now and then refreſhed with water.

When the plants come up, let them be always kept clean from weeds; and when they have remained two years upon this bed, they ſhould be tranſplanted about the beginning of October into beds of freſh, undunged ſoil, about four or five feet wide, and planted in rows about one foot aſunder, and ſix inches diſtance from each other in the rows; the ſurface of the ground about their roots ſhould be covered with ſome mulch: they ſhould be watered in dry weather, and kept clear from weeds in ſummer, trimming them according to the purpoſe they are deſigned for.

In theſe beds let them remain two or three years, according to their growth: then they ſhould be removed in autumn into a nurſery, and planted in rows at three feet diſtance, and eighteen inches aſunder in the rows. In the ſummer ſeaſon they ſhould ſtill be trimmed, and after they have continued here two or three years, they may be tranſplanted to the places in which they are deſigned to remain.

Z.

ZERUMBET, a ſpecies of Ginger. See the article GINGER.

FINIS.

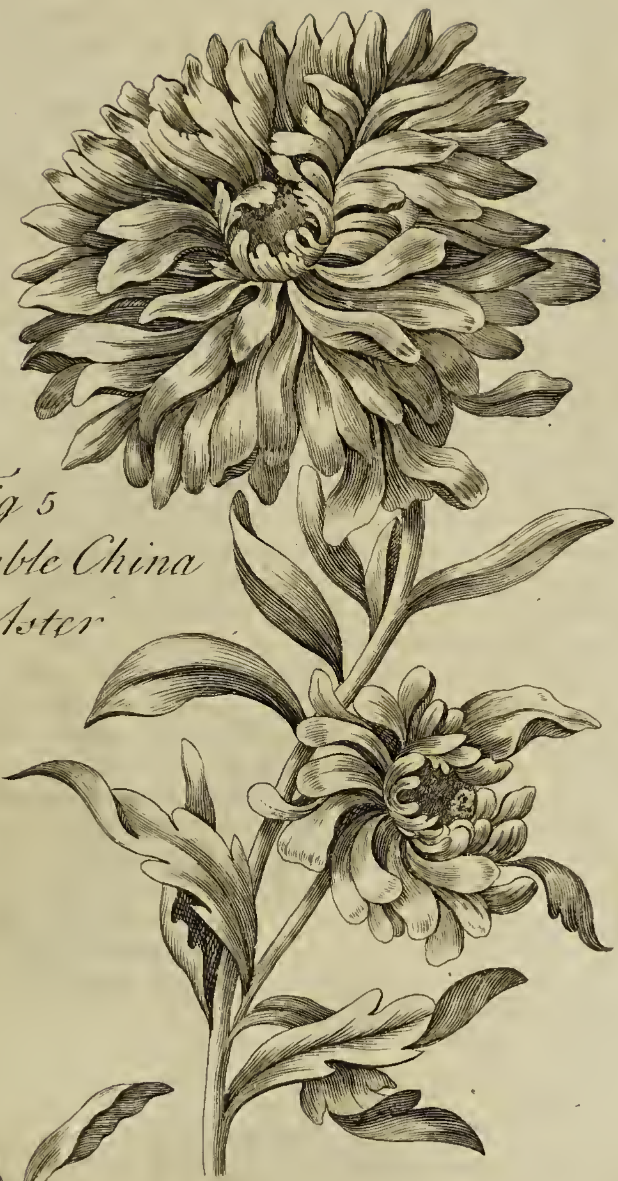


Fig 5
Double China
Aster

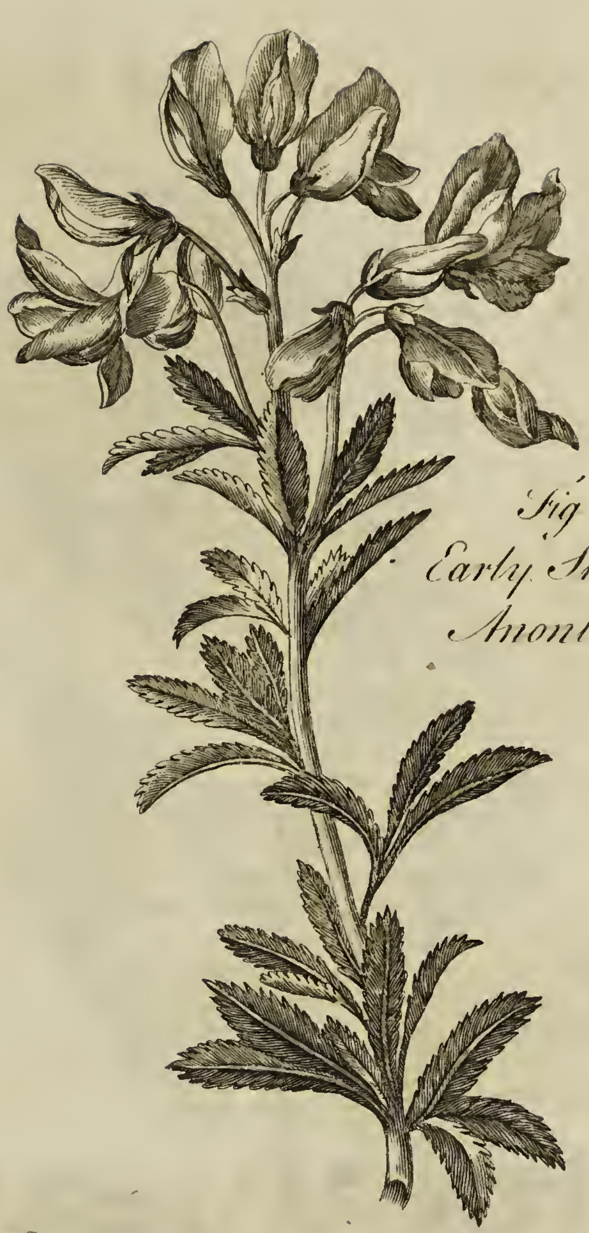


Fig 4
Early Shrub
Anonis

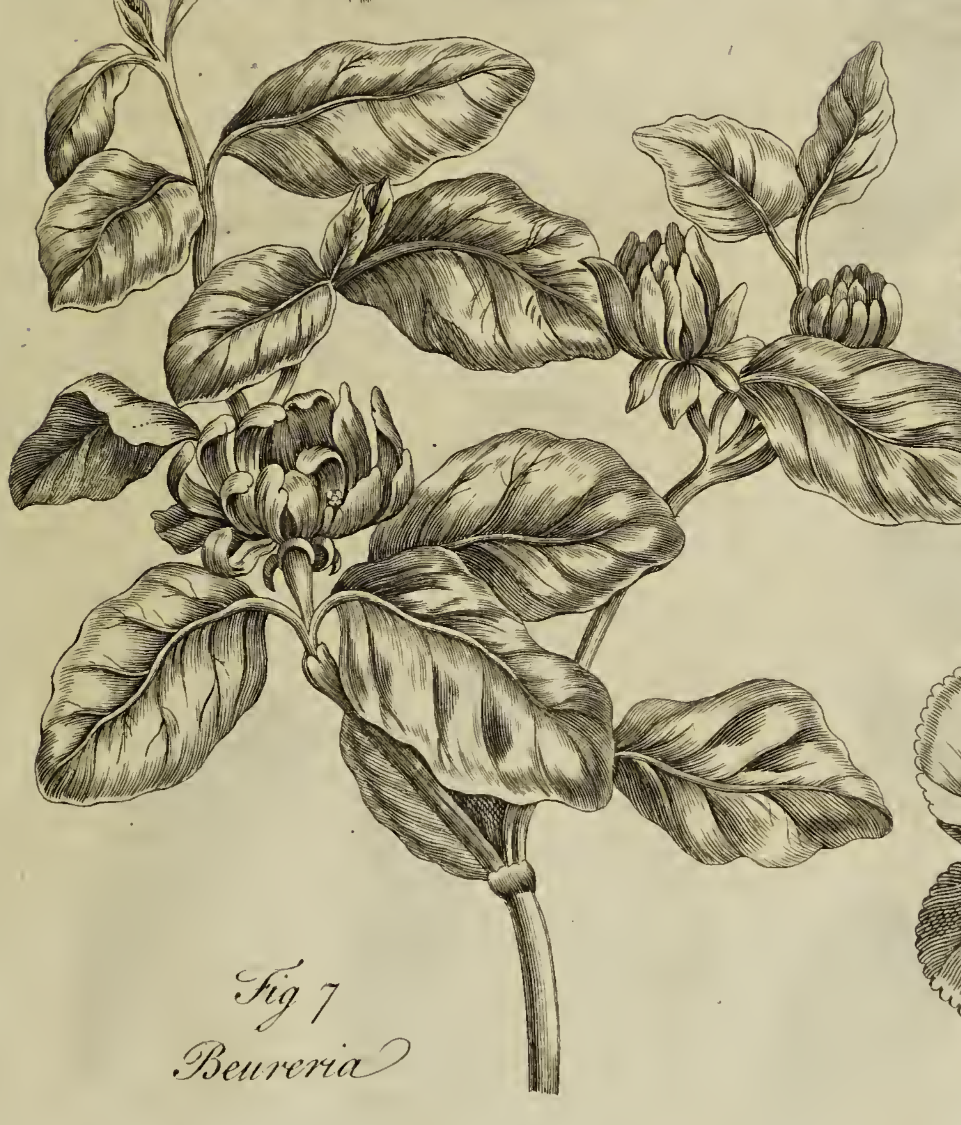


Fig 7
Beureria

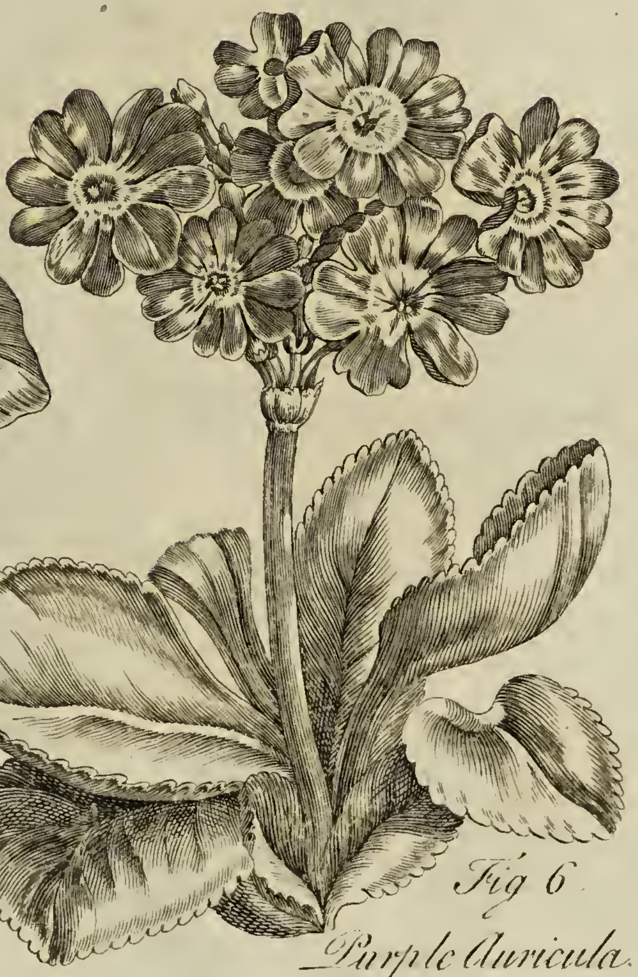


Fig 6
Purple Auricula

Engraved for Dicks's Dictionary of Gardening

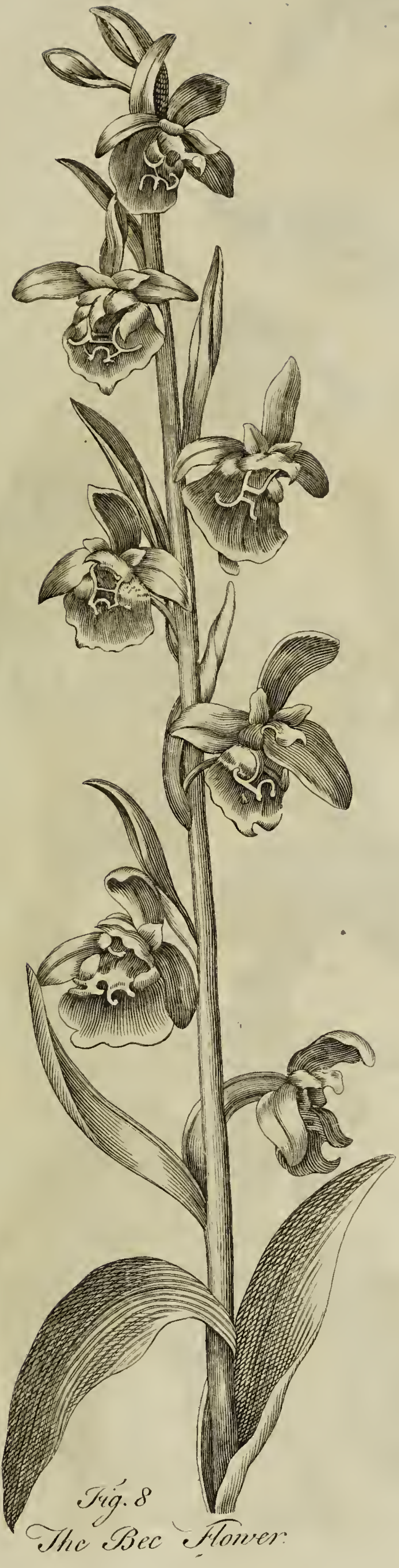


Fig. 8
The Bee Flower

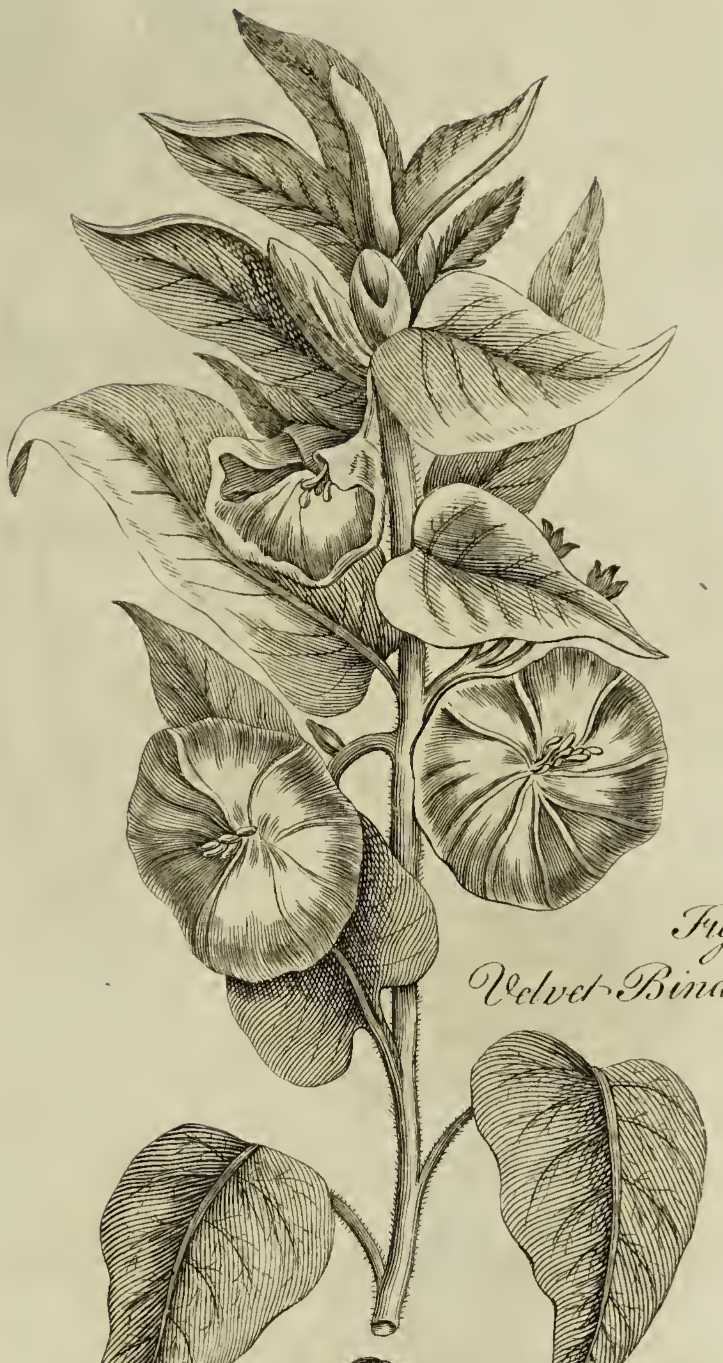


Fig. 9.
Velvet Bindweed

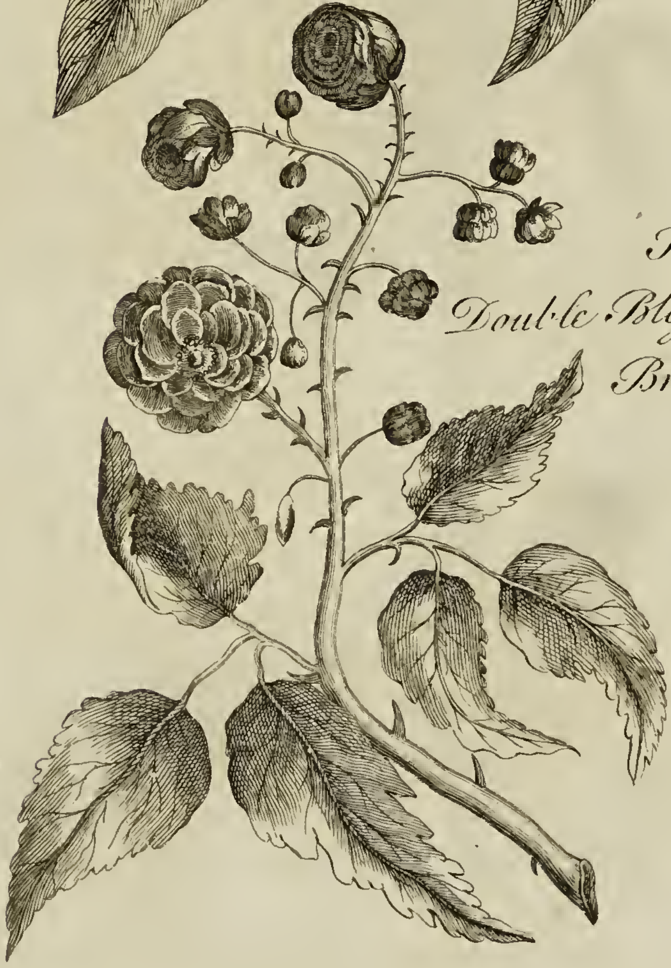


Fig 10
Double Bloſsom'd
Bramble

Engrav'd for Dicks's Gardeners Dictionary.

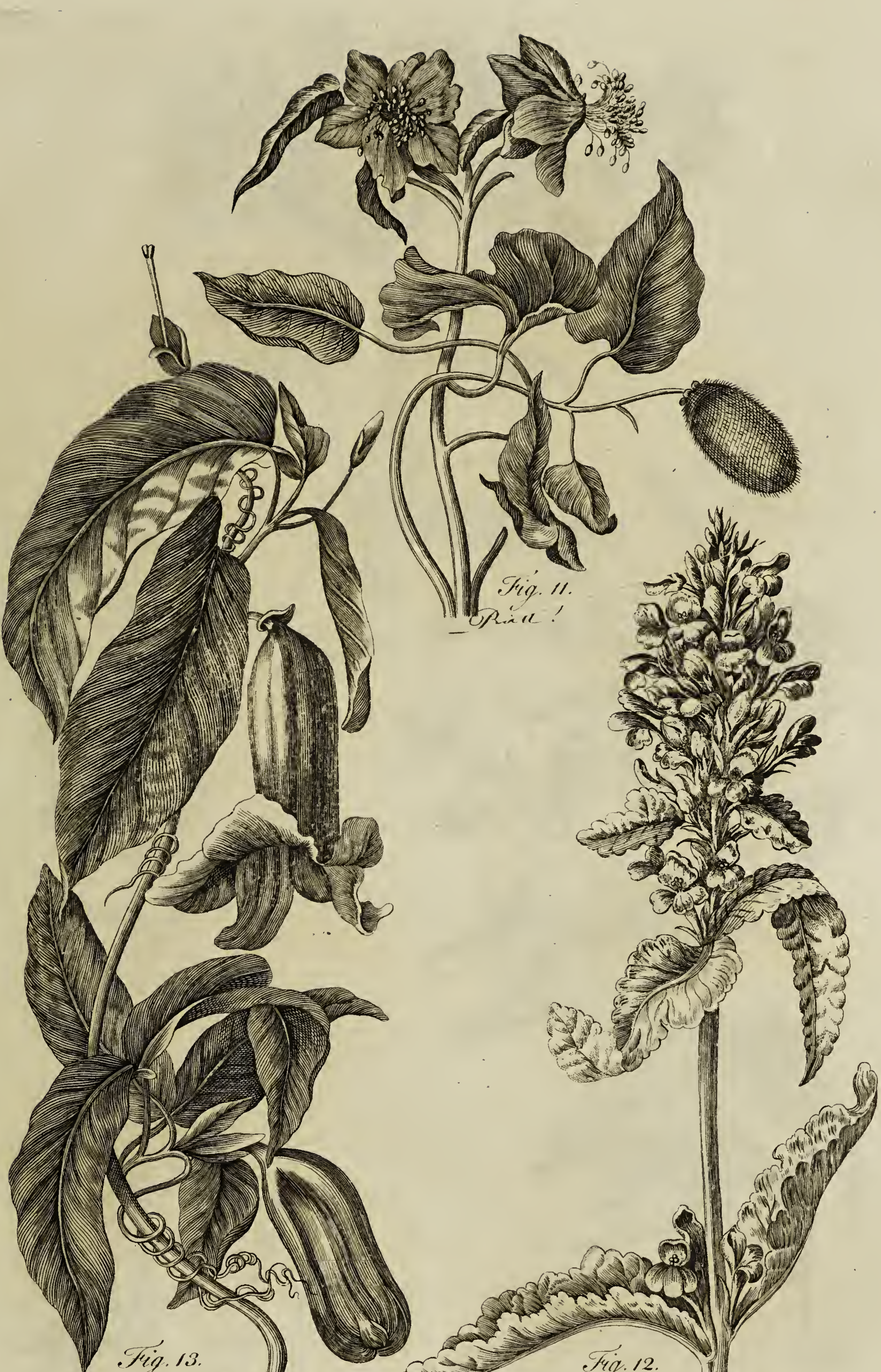


Fig. 11.
Rall !

Fig. 13.
Quadrifoliate Bignonia.

Fig. 12.
Oriental Betony.

Engrav'd for Dicks's Gardeners Dictionary.

[illegible]

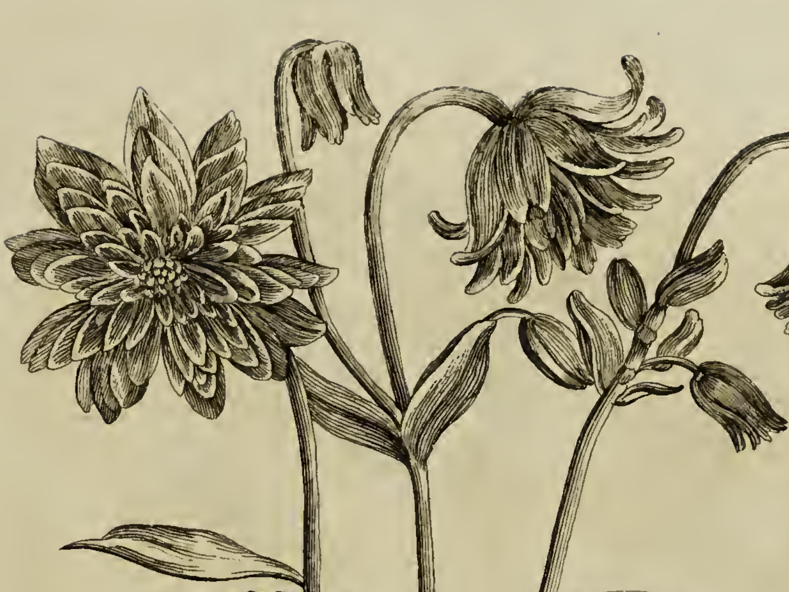


Fig. 14.
Double Starry Columbine

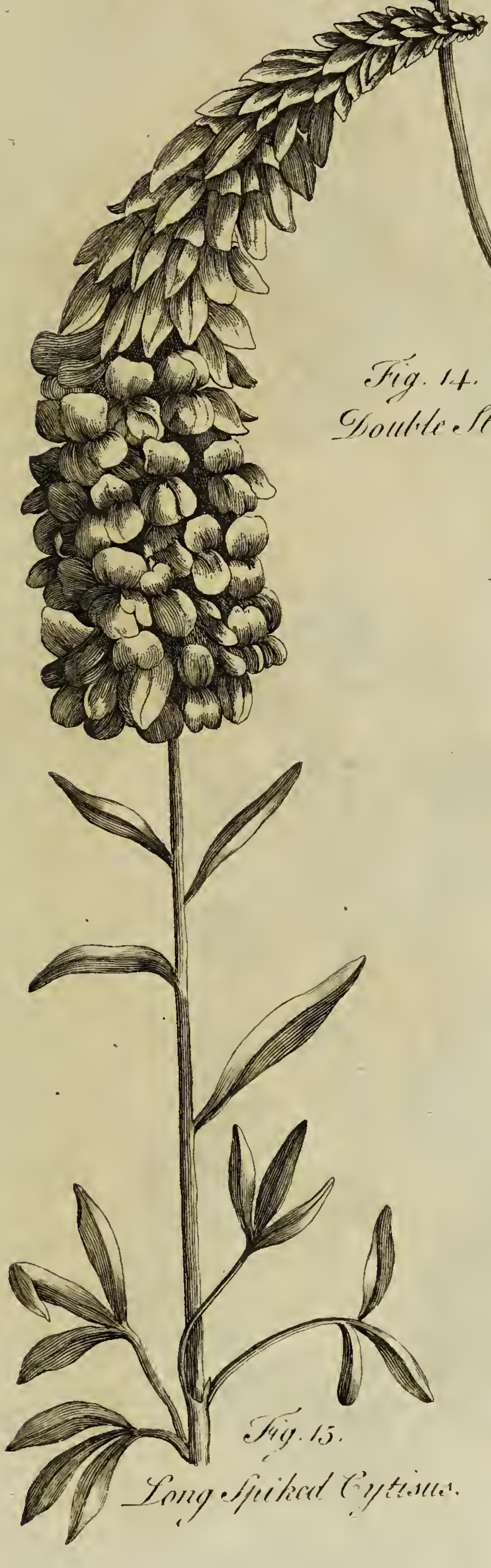


Fig. 15.
Long Spiked Cytisus.

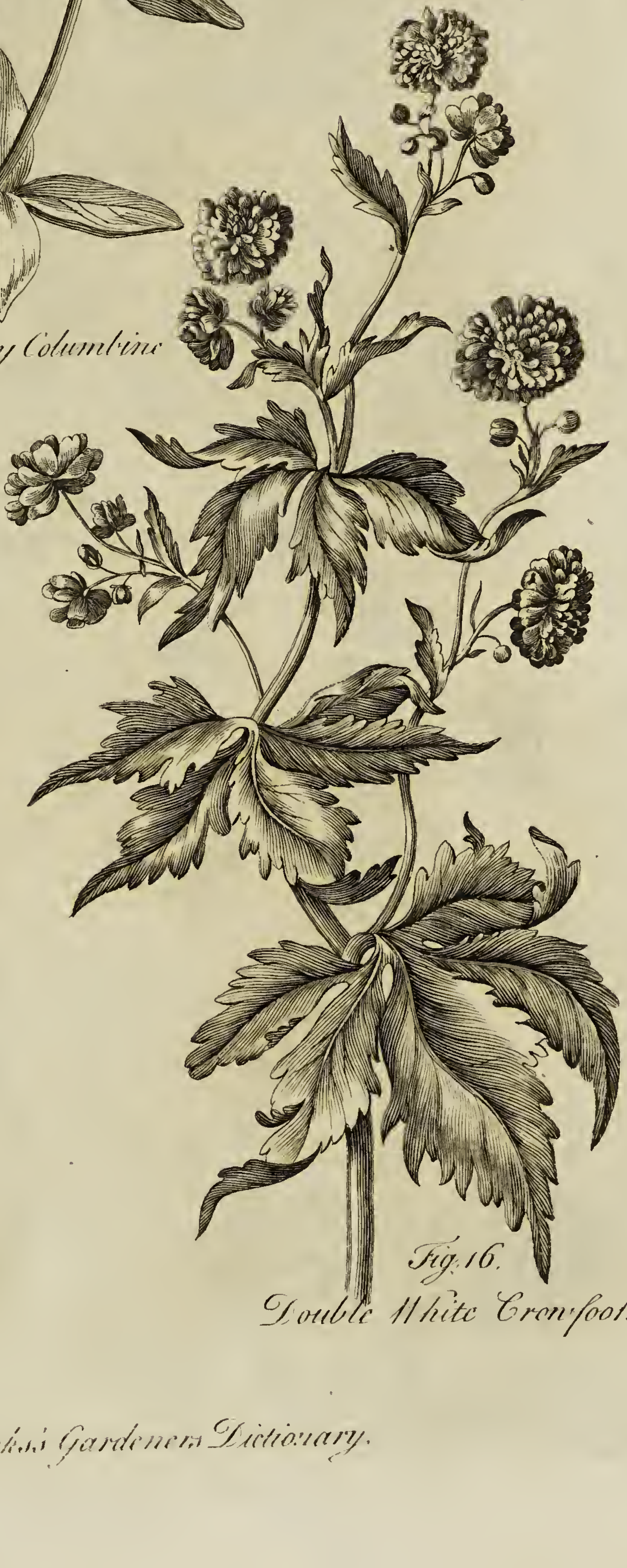


Fig. 16.
Double White Crowfoot.

Engrav'd for Dicks's Gardeners Dictionary.

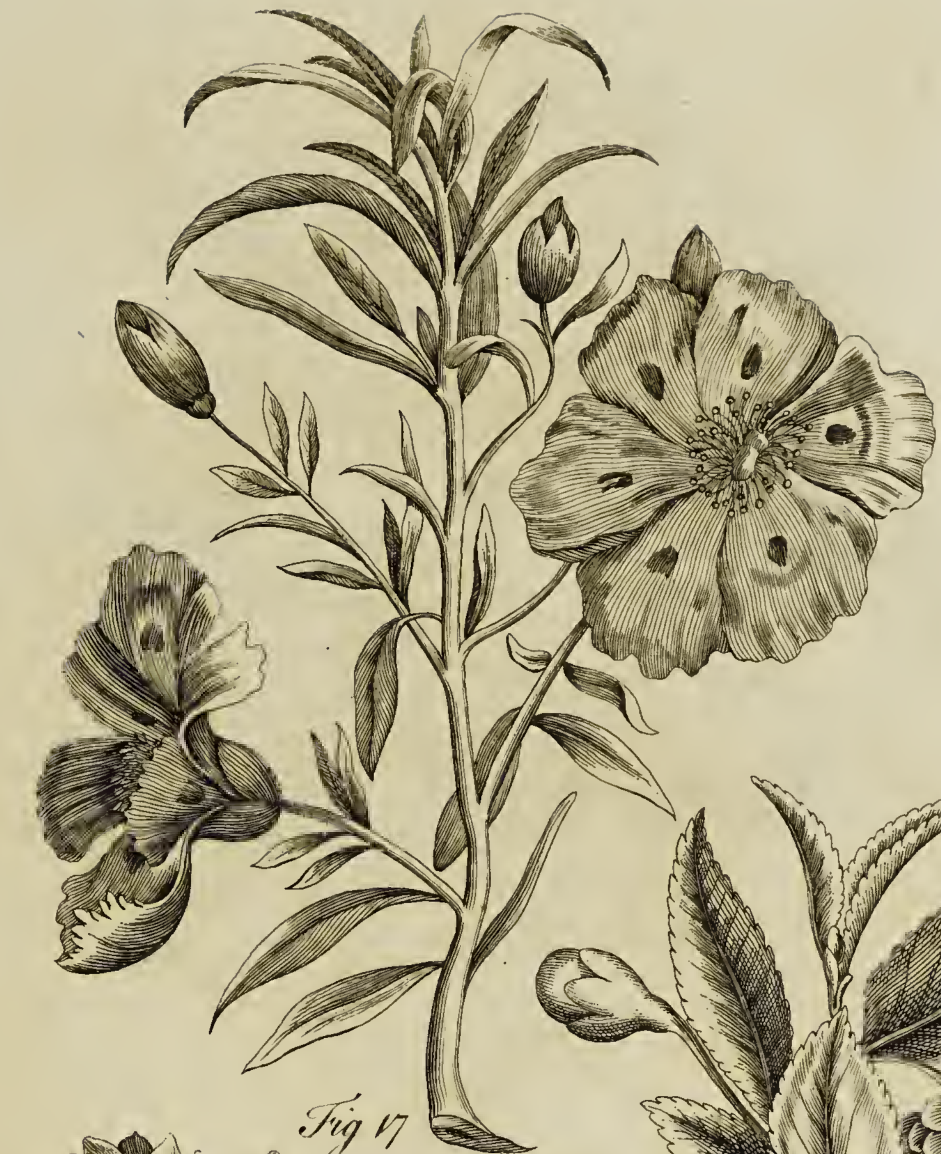


Fig 17
Spotted Cistus

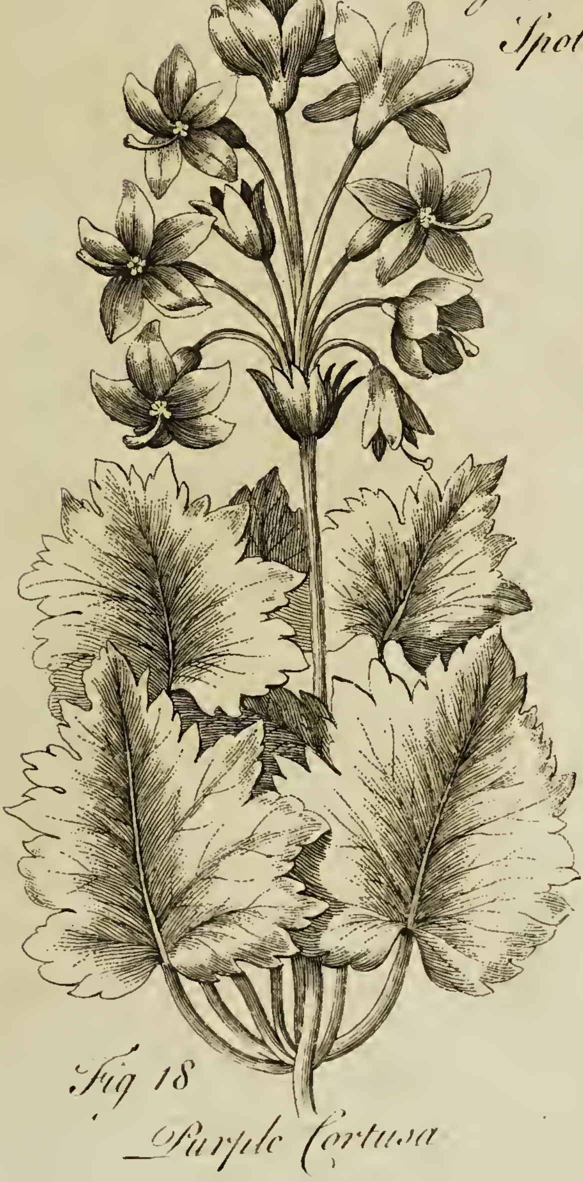


Fig 18
Purple Cortusa

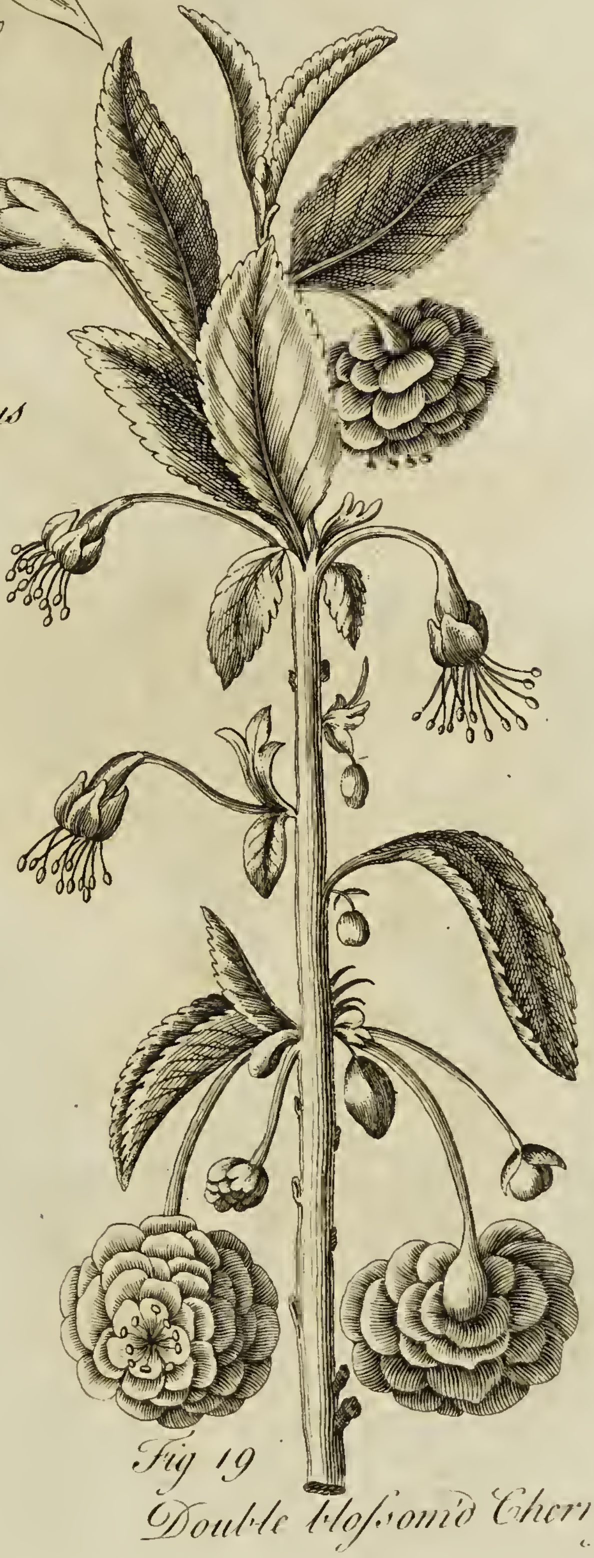


Fig 19
Double bloſsom'd Cherry

Engrav'd for Dicks's Gardeners Dictionary.

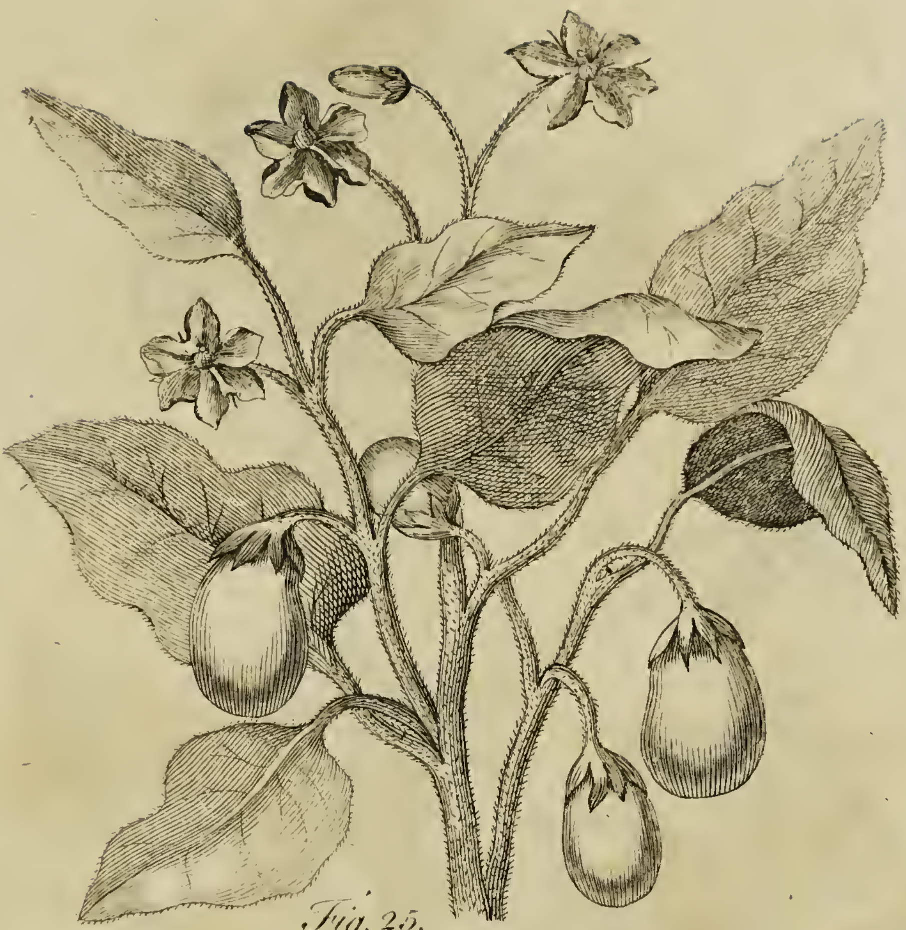


Fig. 25.
Egg Plant

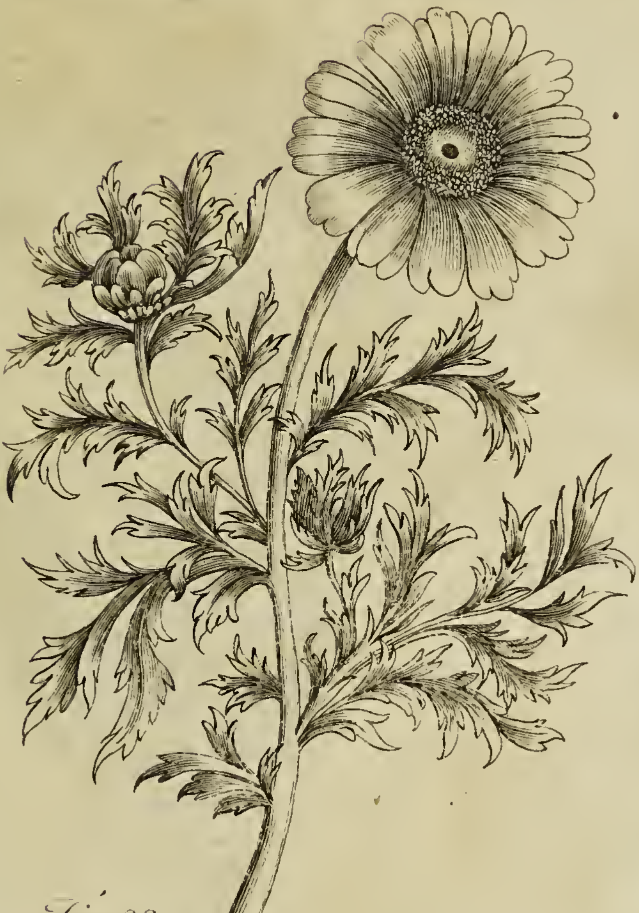


Fig. 23.
Candy Chrysanthemum

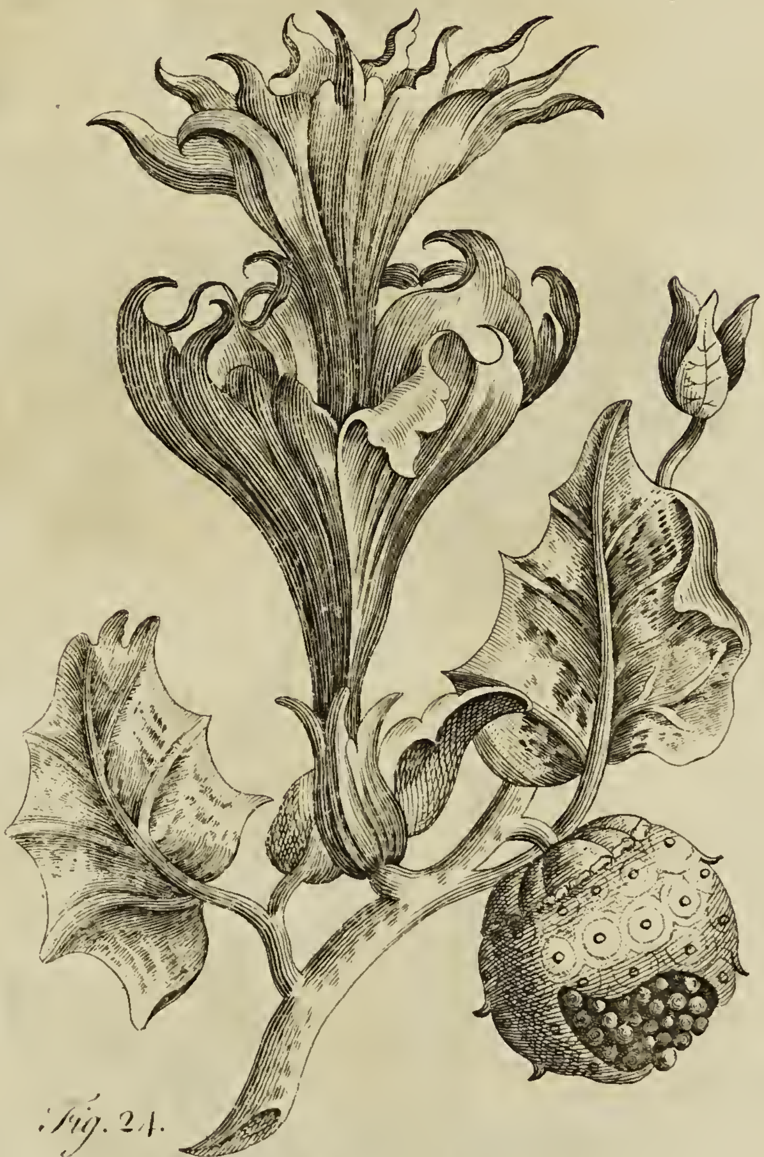


Fig. 24.
Proliferous Datura

Engrav'd for Dicks's Gardeners Dictionary.

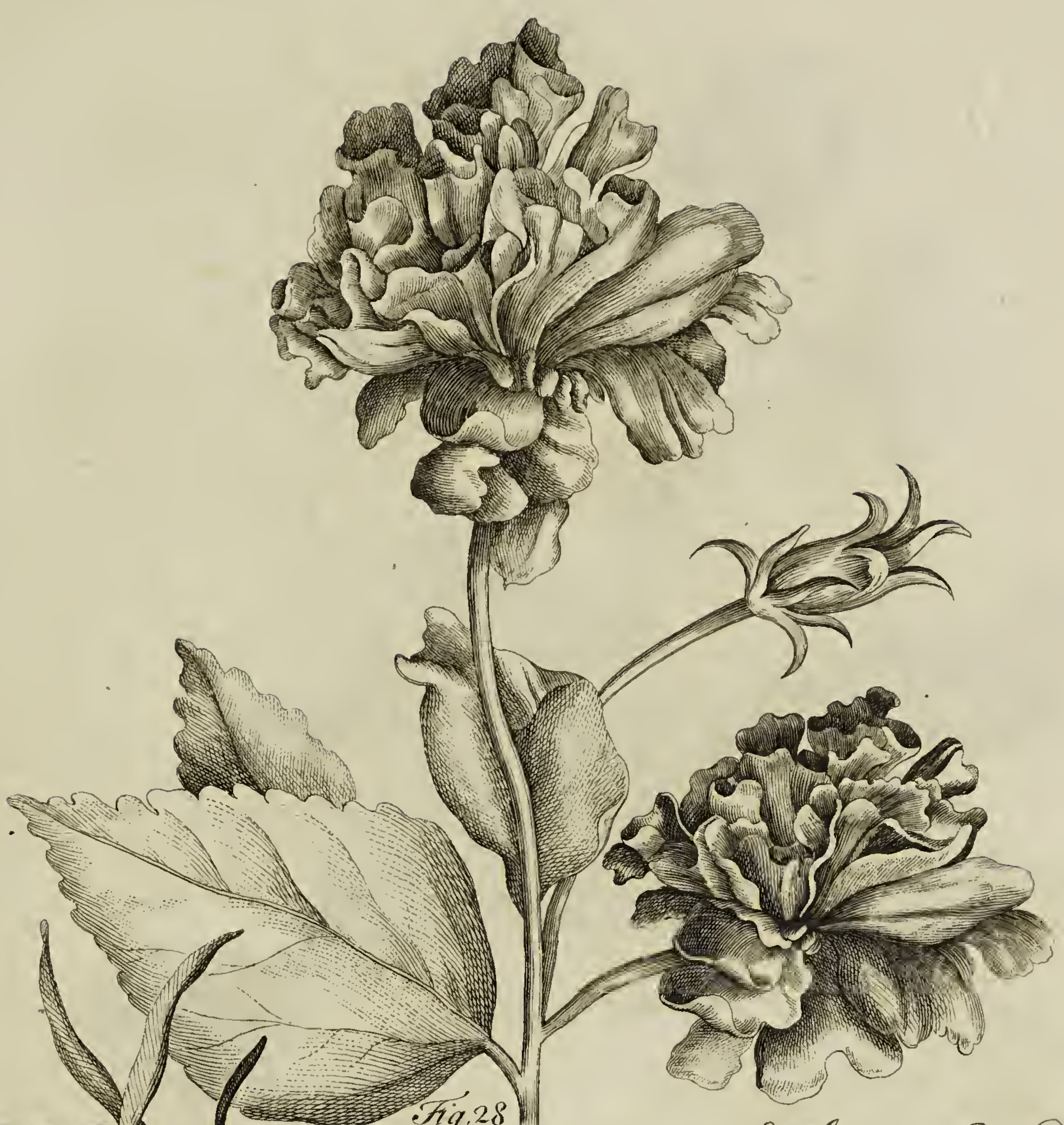


Fig. 28
Oval leav'd
Rose Hibiscus.

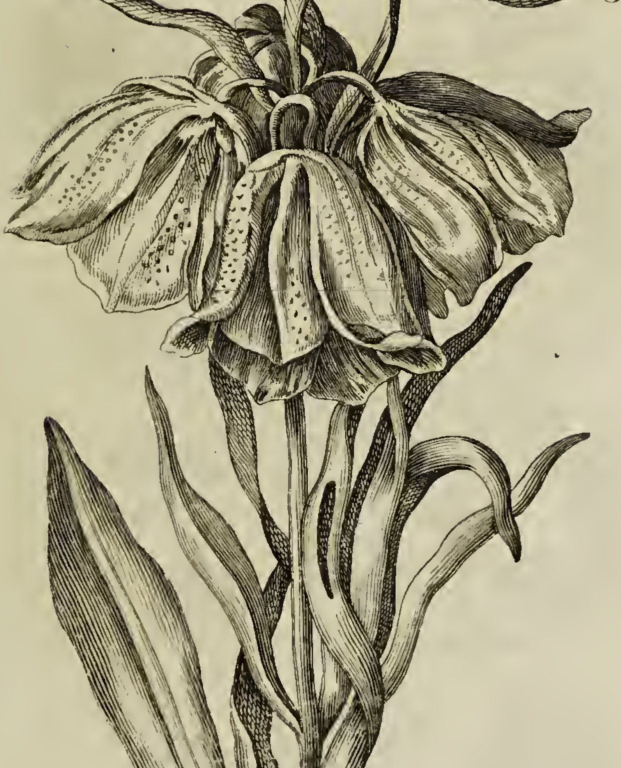


Fig. 26
Broad leav'd Cluster Frutillary.

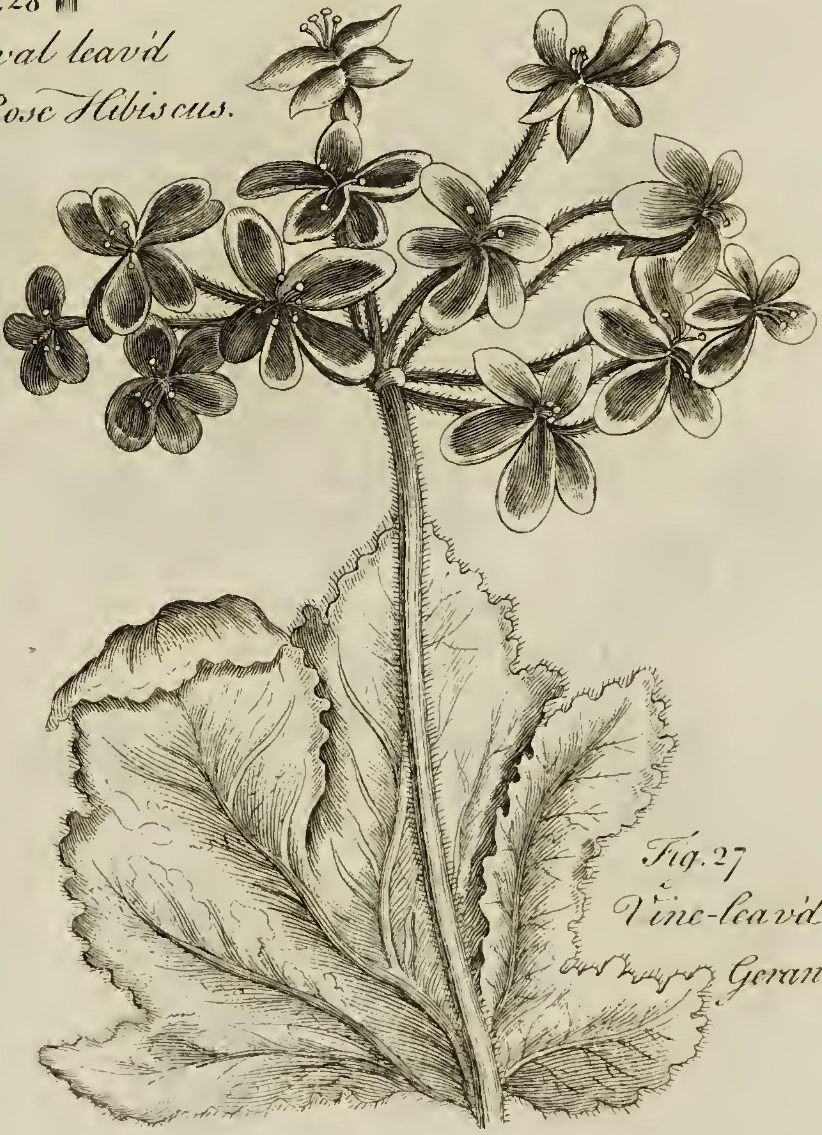


Fig. 27
Vine-leav'd
Geranium.

Engrav'd for Dicks's Gardeners Dictionary.

[illegible]

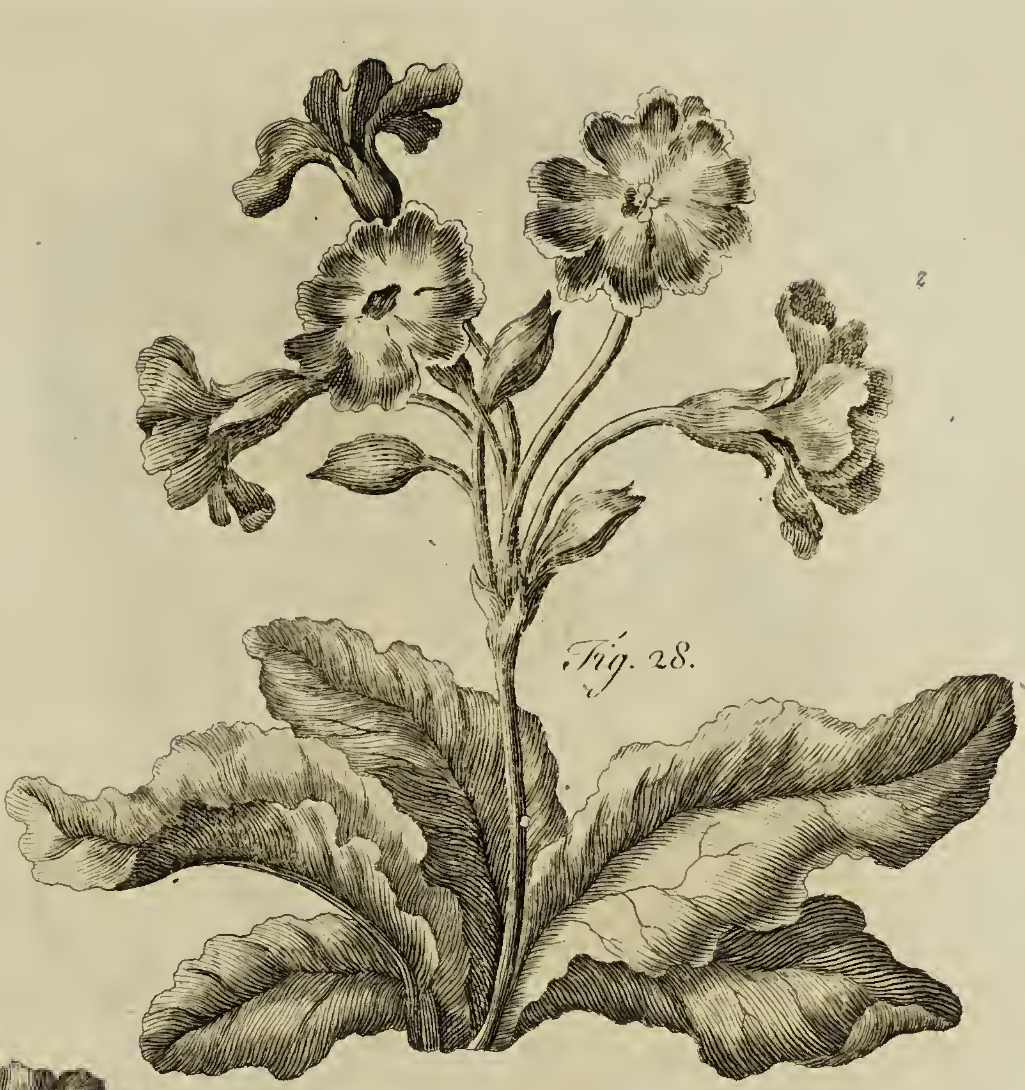


Fig. 28.

The Polyanthous Primrose

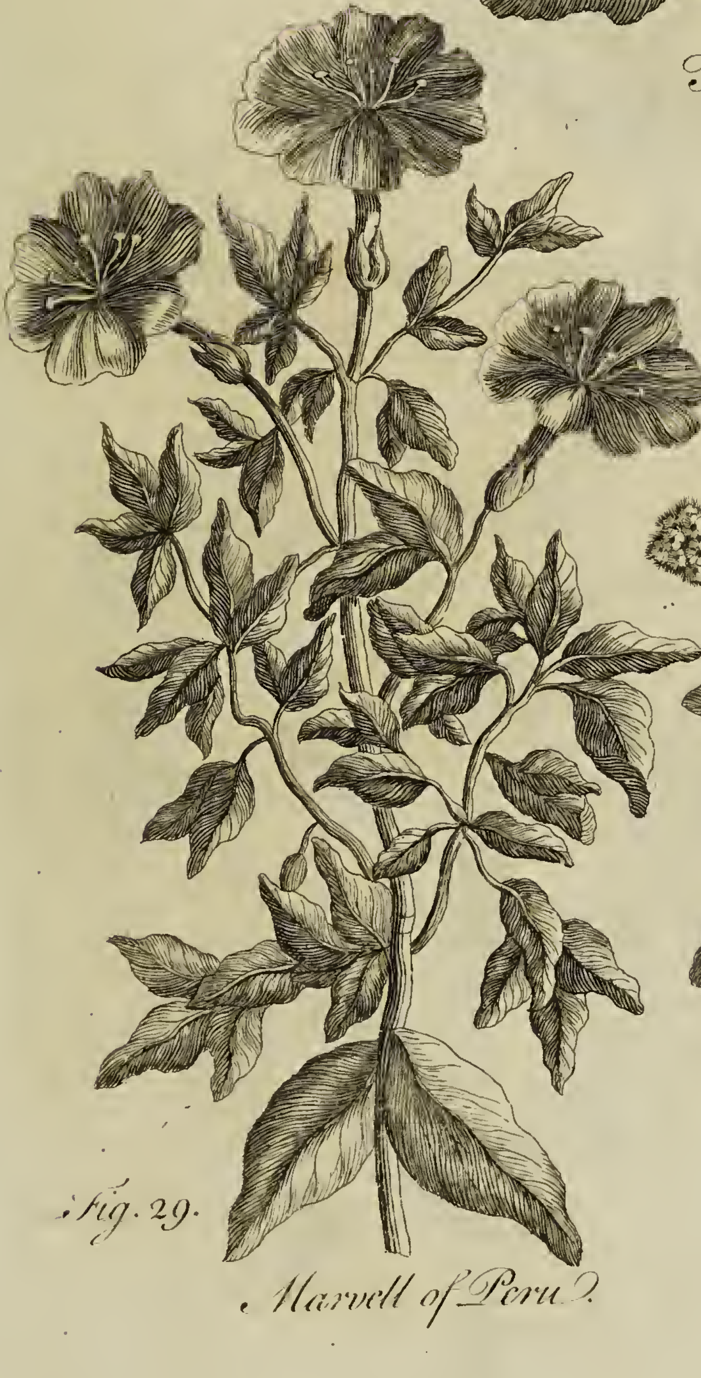


Fig. 29.

Marvell of Peru

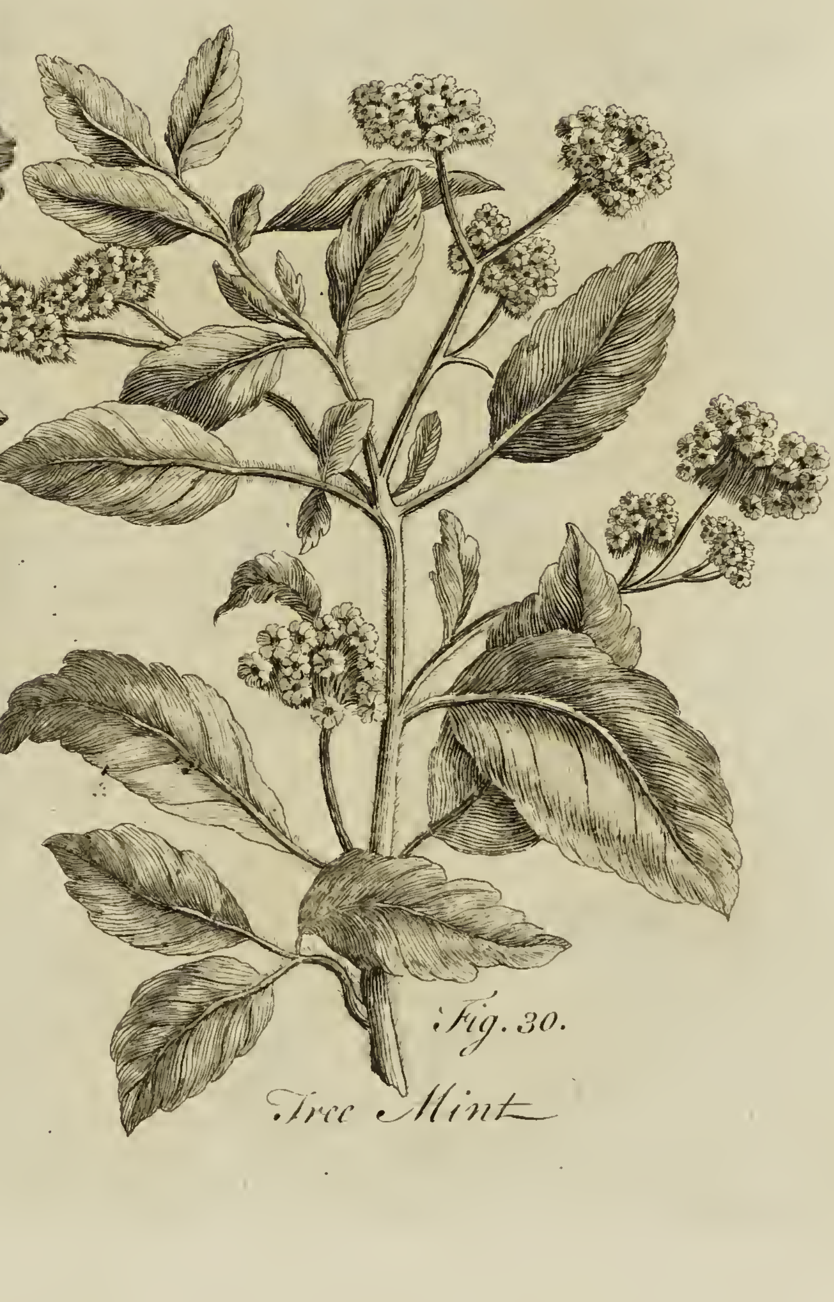
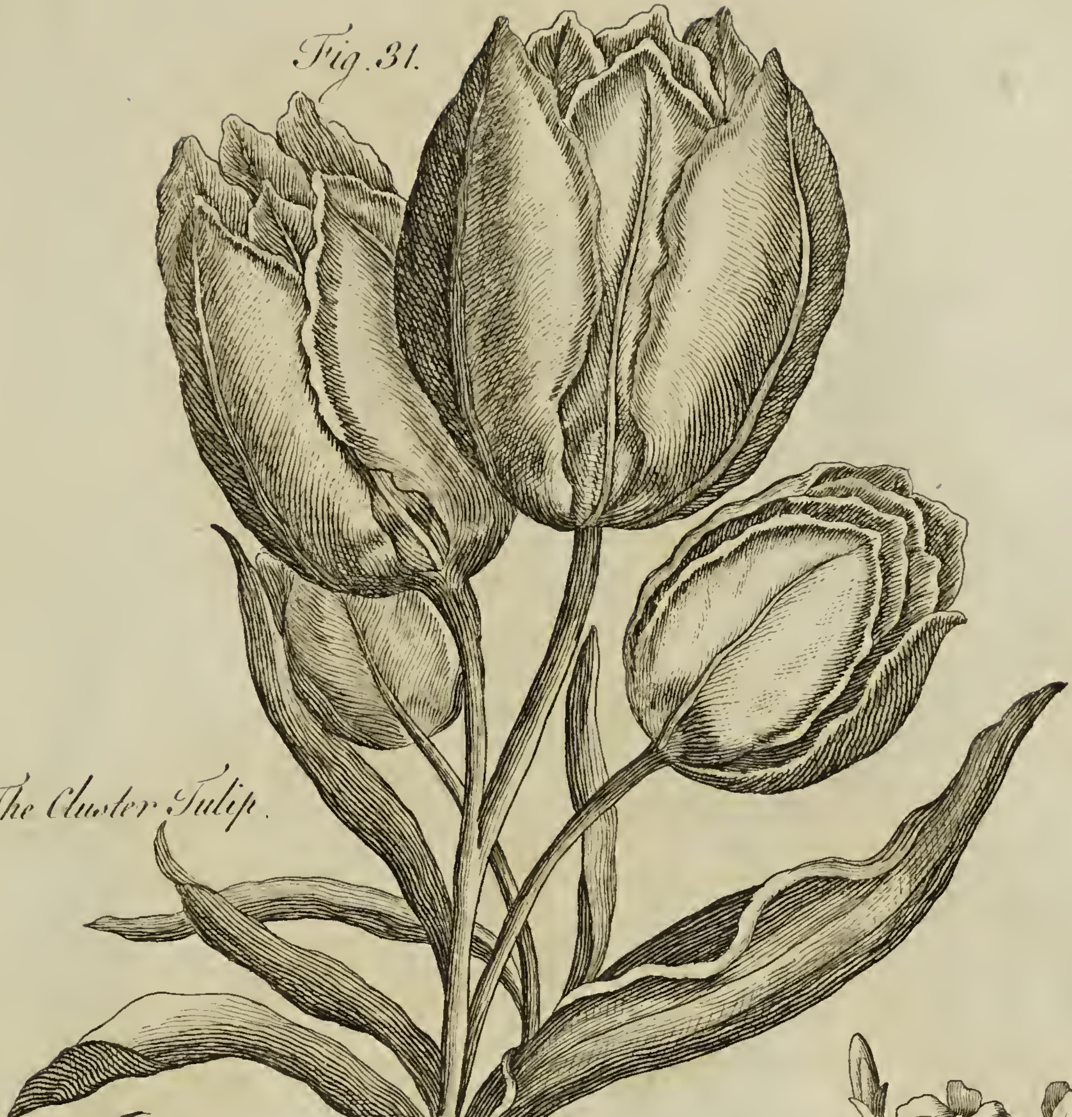


Fig. 30.

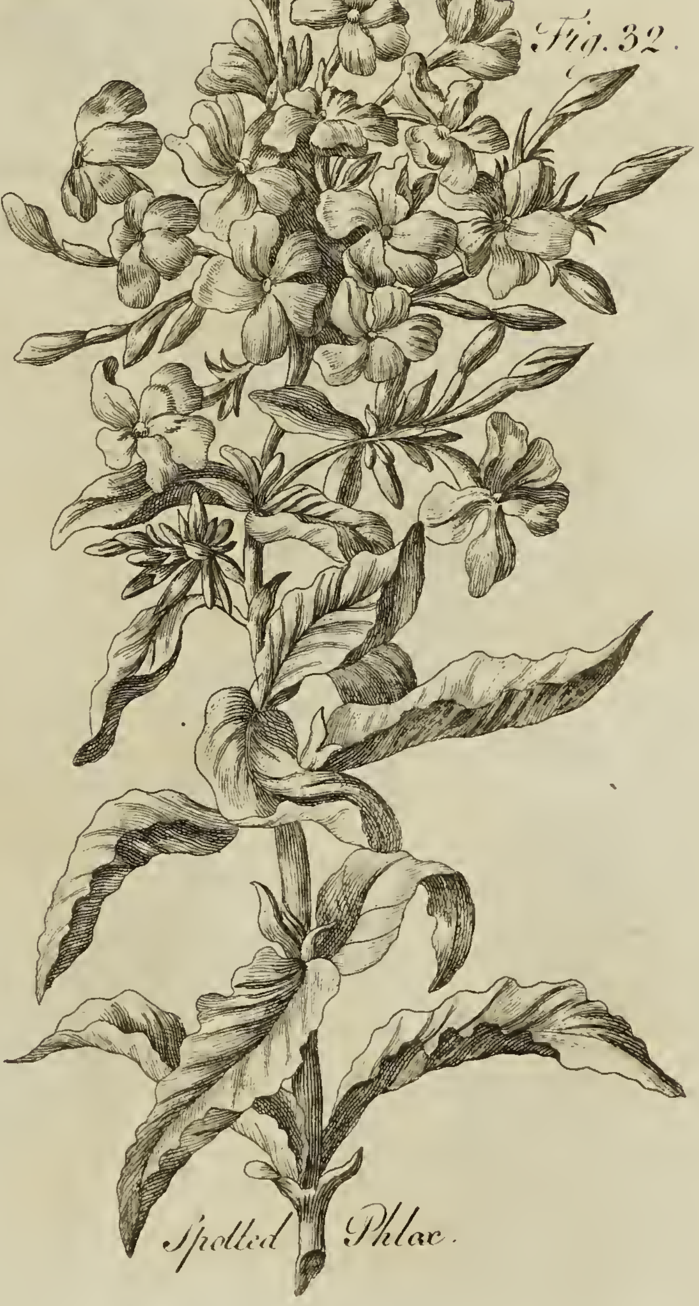
Tree Mint

Fig. 31.



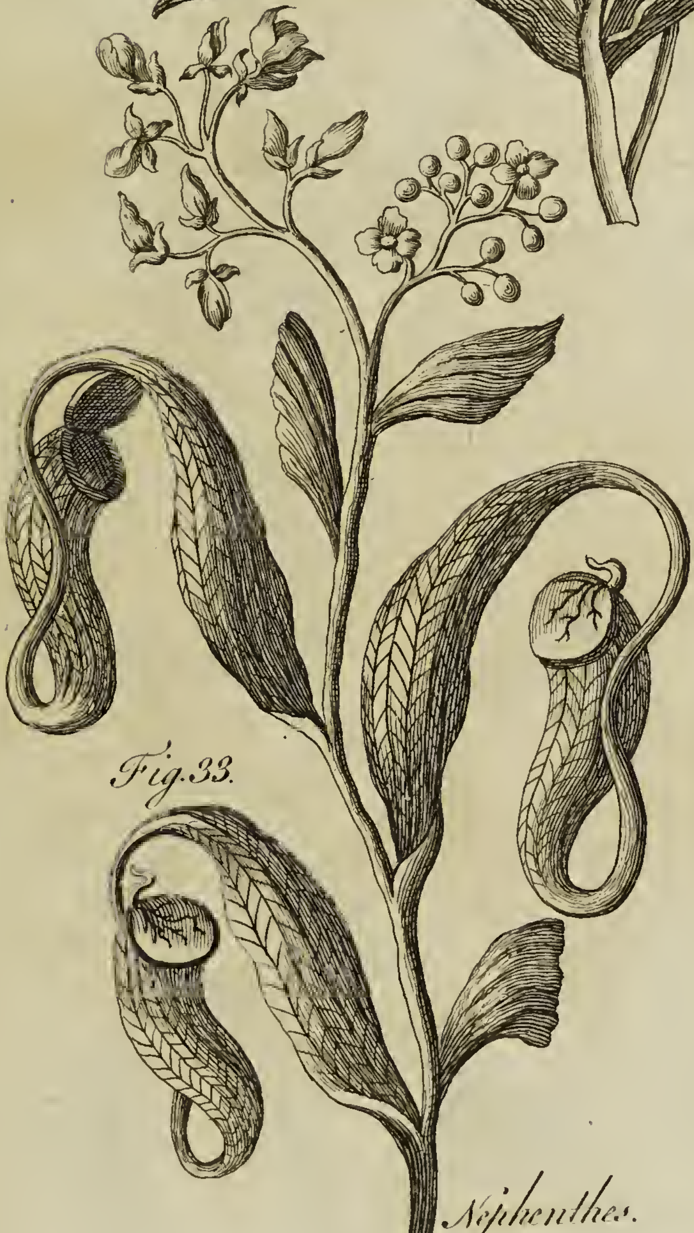
The Cluster Tulip.

Fig. 32.

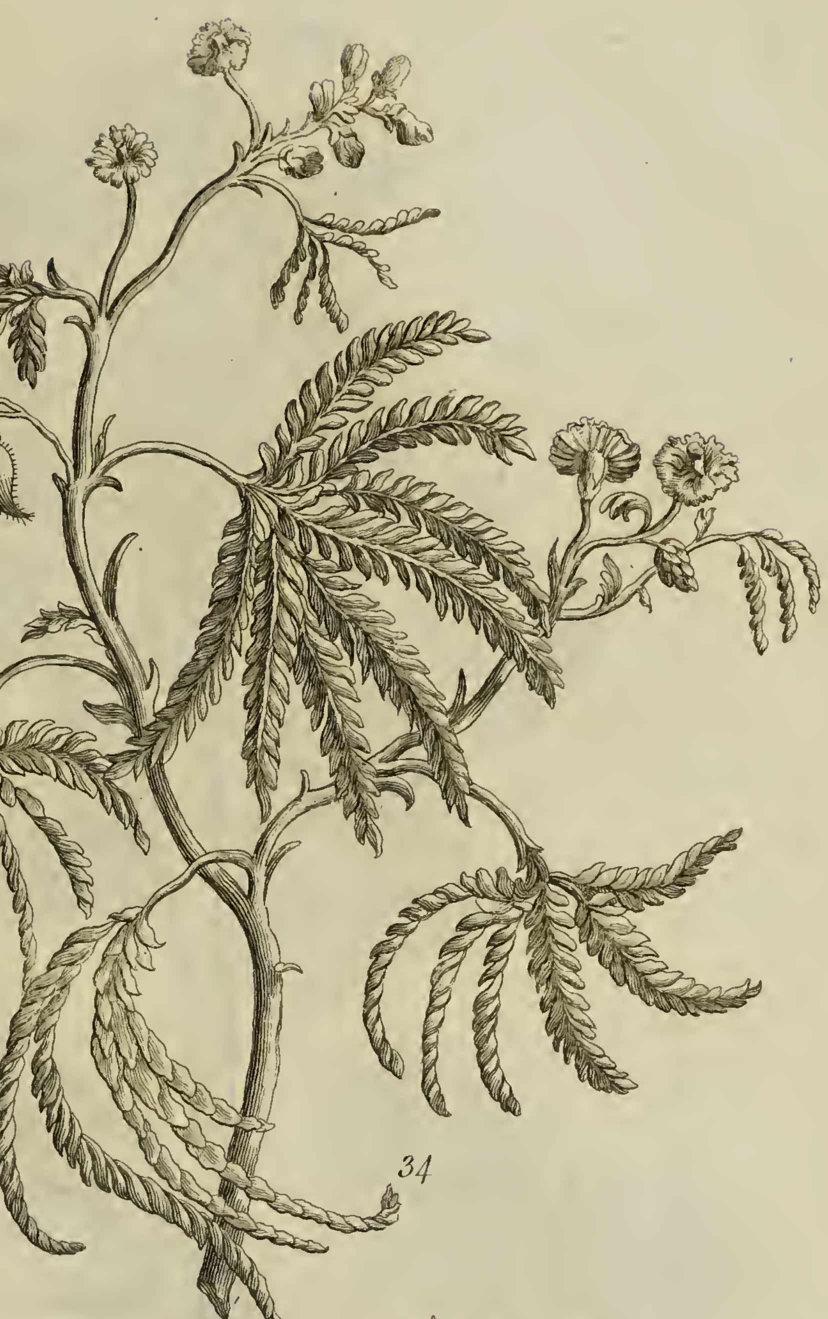


Spotted Phlox.

Fig. 33.

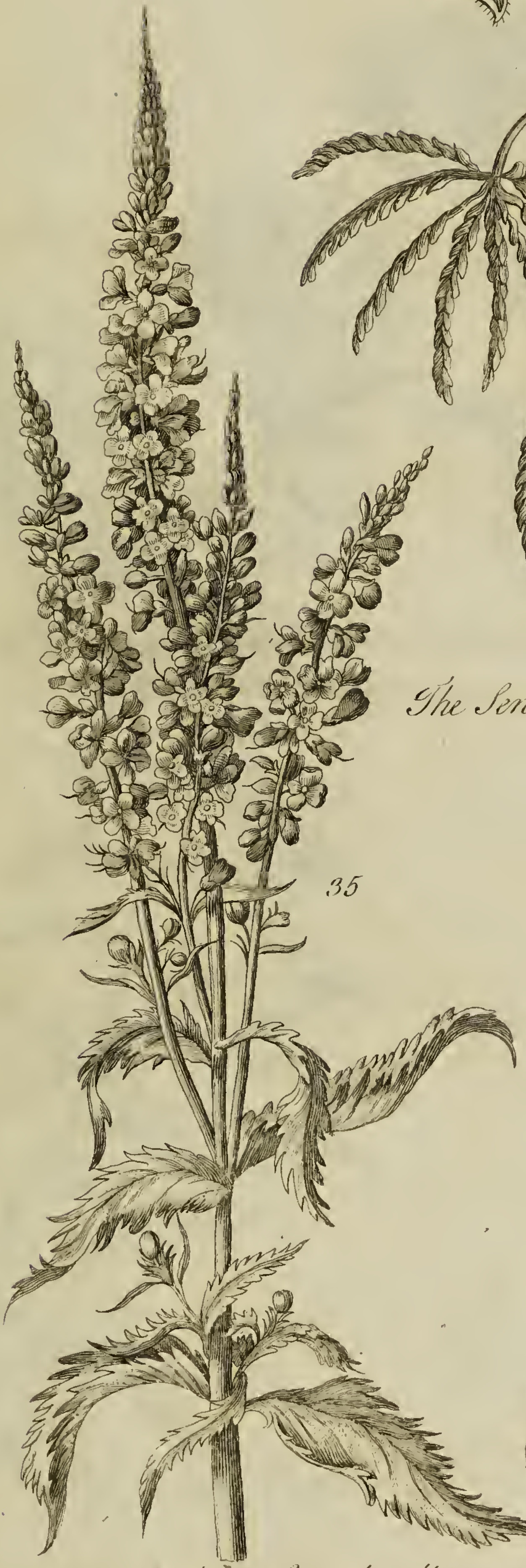


Nephenthes.



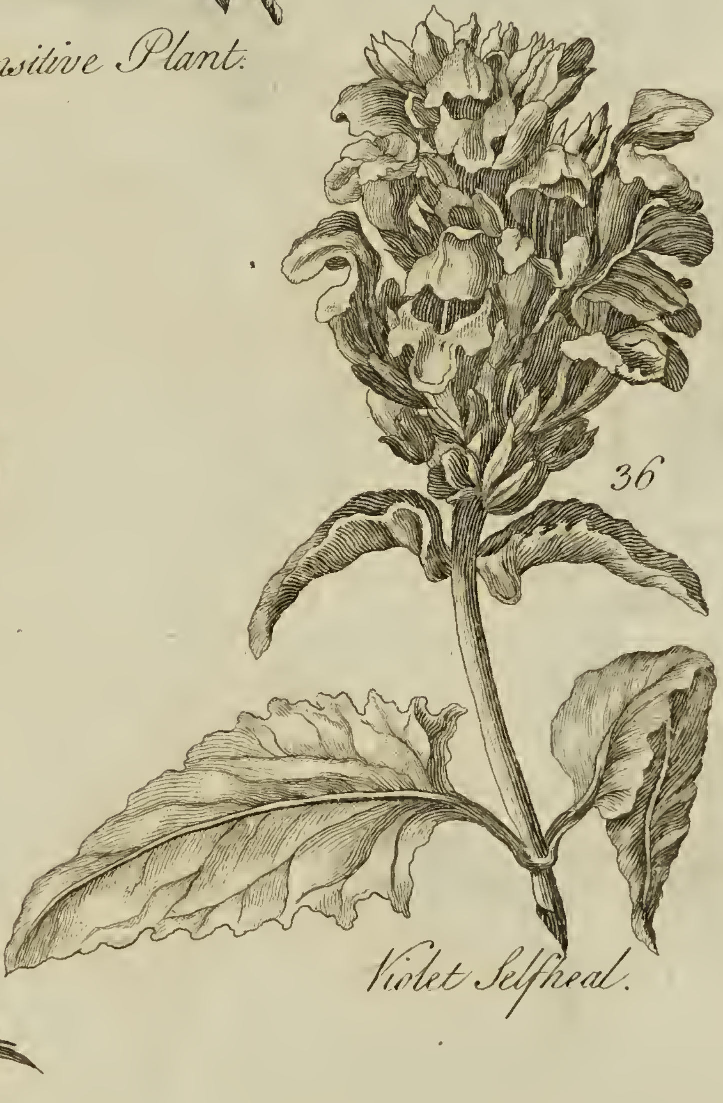
34

The Sensitive Plant.



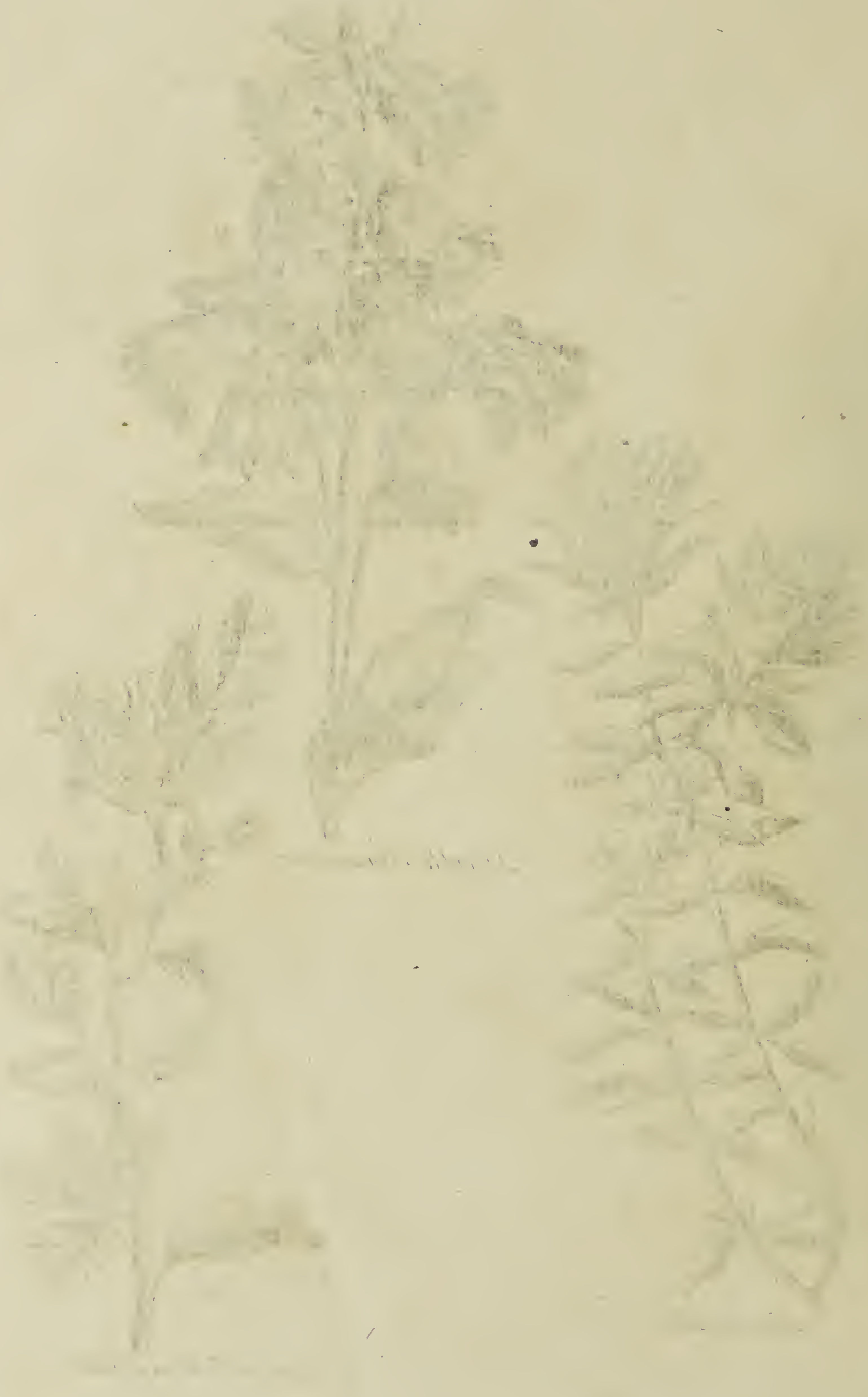
35

many Spiked Speedwell.



36

Violet Selfheal.



Hegar 4.